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OF AUSTRALIA

VOL. II.—11TH YEAR.

SYDNEY: SATURDAY, NOVEMBER 22, 1924.

No. 21.

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### THE SPAHLINGER TREATMENT OF TUBERCULOSIS.\*

By SIR DAVID HARDIE, M.D., LL.D.,  
*Brisbane.*

BEFORE considering the subject of this communication, the following particulars may be of interest. Mr. Spahlinger became a student of medicine at the Geneva University, but after three years' study gave it up. He then entered for law and qualified, but never practised. As a boy he had a small laboratory fitted up for him at home by his father and he now worked in his laboratory instead of following his profession and since then he has given up his whole time to the work of preparing an antidote in the treatment of tuberculosis. This was done on such a large and extravagant scale that he mortgaged his own and his father's property to the extent of £100,000 and is now left without means to carry on. Unless he obtains financial assistance, the work will come to a standstill and, I presume, this is the origin of his receiving so much publicity both here and in the old country. Neither in Switzerland nor France has he received such publicity.

This assistance has been offered him from more than one quarter. Through the British Red Cross Society he was given £30,000 on condition that he supplied a certain quantity of his serums and vaccine within a given period, but he returned the money as he could not comply with the conditions. A Lancashire Insurance Company offered him as a free gift £1,000, but the legal authorities prohibited the gift as the money belonged not to a private body, but to a public body. I was also informed that a private company offered him a million dollars for the purchase of his whole plant, including the secret of manufacture. This offer he refused, on the ground that the purchasers would probably not give the time required for the manufacture of the products, namely four years, and would consequently produce an inferior article. Besides it would give them for all time a monopoly. There was also the possibility of a colonial government offering him £100,000, an offer which, if made, he would seriously consider. He thought a government would be less likely to hurry over its manufacture.

It is quite evident, therefore, that Mr. Spahlinger is not out for making money; on the contrary he has supplied a few medical men gratis with his products and, according to his own statement, has refused a huge sum for divulging the secret of manufacture.

\* Read at a meeting of the Queensland Branch of the British Medical Association on September 5, 1924.

I should mention, we have it on record, that in order to test the efficacy of his treatment, the British Ministry of Health requested him to allow a committee of experts to investigate the matter, but the request was refused. It is said that this was due to want of serum.

I should also mention that when I received a letter from the Assistant Home Secretary requesting me to obtain information on the Spahlinger treatment of tuberculosis, I was already on the Continent on my way back to Queensland. When in England, I had read articles in the medical and public press by Theodore Williams in favour of the treatment and letters, for and against, by Watts and others. These did not greatly impress me, but I decided to see for myself on reaching Switzerland. The Assistant Home Secretary's letter now emphasized the need for doing so.

My visit to Geneva lasted a week and so far as the Spahlinger treatment is concerned, was of a three-fold nature, to meet Mr. Spahlinger and see over his establishment, to interview medical men who had experience of the treatment and thirdly in the hope of having an opportunity of personally examining patients.

#### Visit to Spahlinger's Establishment.

The day after my arrival I called on Mr. Spahlinger who received me most kindly and conducted me together with another medical man from England over his establishment. This consisted of a large farm house and out-buildings, the former being largely converted into work rooms for the preparation of his products and the latter for the storage of live stock, horses, cows, goats and guinea pigs for inoculation purposes. He first conducted us to an inspection of the live stock and premises and gave a detailed account of the inoculations the various animals received. The premises were scrupulously clean. He then took us over the laboratories in the main building. He stated that he had isolated twenty-two different toxins of the tubercle bacillus and had succeeded through a prolonged series of inoculations in animals of these various toxins in obtaining a serum, which he calls a partial serum, that cures tuberculosis. He also makes a polyvalent serum and a vaccine. The process is a long one and covers a period of four years.

I can only express my impression that Mr. Spahlinger was well versed in the routine work of experimental inoculation in animals. He did not, however, explain how he obtained his toxins nor would I have gained much thereby as I cannot claim to be a bacteriologist.

#### Personal Examination of Patients.

In regard to a personal examination of patients my visit was a complete failure, for the simple reason that I could find no patients for examination. I should mention that Mr. Spahlinger in introducing one of his assistants, the only one present during my visit, said that this was a good example

of complete recovery by his treatment and offered to allow me to examine him. I recognized that such an examination would have been worthless without the assurance that the diagnosis was originally correct, and without full notes of his past condition and history by a medical man. Furthermore, the visit being one of inspection, it was not the time nor was a laboratory the place for such an examination. It is also true that a medical man in Geneva, on whom I afterwards called, said he could show me two or three patients in a few days, but as I was leaving Geneva the following day, I was unable to take advantage of his kind offer.

Plainly then there was no hope of making a personal examination of patients in Geneva. One ray of hope remained. I was told that the greatest enthusiast of the treatment was Dr. Stephani, of Montana, and that if I could visit that mountain resort, some hundred miles distant, I should if anywhere see patients under treatment. Two weeks later on my way to Italy I visited Montana for this purpose, but unfortunately with no better result. Dr. Stephani had no patients under treatment for lack of serum and vaccine. From this point of view, therefore, my visit to Geneva and Montana was entirely negative.

#### Personal Interviews.

There remained one other way of obtaining information, namely by personal interviews. With this object in view, I called on a well-known medical man in the hope that, even if he had no personal knowledge of the treatment, he might put me in the way of those who had. He received me most cordially. He had not used the treatment and stated that with one or two exceptions, medical men did not believe in it and therefore did not use it, nor was it used in the State hospitals or dispensaries. He did not speak unkindly of Mr. Spahlinger, thought his motives were quite unselfish from a monetary point of view, but objected to the secrecy of his methods. He advised me to see Dr. Trechsel, of Geneva, and Dr. Stephani, of Montana, as the two men in Switzerland best qualified to speak from personal experience. These statements were corroborated and supplemented by another member of the profession whom I afterwards met. At the university I also had the privilege of an interview with one of the professors whose opinion I desired. He had never used the treatment, seemed surprised that I should ask such a question and in order to emphasize the point, wrote out and handed me a note to that effect.

I subsequently called on Dr. Trechsel who most kindly related his experience of the treatment. Briefly put, it may be said that he had treated a good many patients with Spahlinger's serum and was satisfied with the result. He it was who courteously offered to show me two or three patients in a few days—an offer of which unfortunately I was unable to take advantage, as I was leaving Geneva the following day.

Dr. Stephani, of Montana, was more enthusiastic. He had treated three hundred patients, mostly Russian refugees during the war, with the following



results: Recoveries from serum treatment 80% and from vaccine 77%. He informed me that he had been greatly hampered for want of serum and vaccine, the supply of which had all along been insufficient and intermittent. For this reason he had no patients under treatment at that time. He, however, was in favour of the treatment and, in order to show the results, went over with me numerous records of cases, one of which may be cited as an example.

A patient with a history of pulmonary tuberculosis for a year, had infiltration of both lungs and a cavity in one; he had had a hæmorrhage and his temperature reached 40° C. (104° F.). Several injections of serum were given and in two months he had lost seven kilograms in weight and was getting worse. Cow serum was then given by the mouth. In six days his appetite improved, his cough and fever disappeared and in two months he had gained eight kilograms; the physical signs in his lungs had cleared up, he appeared cured and treatment was given up. Four months later, all symptoms returned and treatment by cow serum was renewed. In two weeks he had greatly improved and in five months all signs and symptoms had disappeared. He had increased ten kilograms and was apparently cured. Ten years later, in 1919, he had increased twenty kilograms and was in robust health.

In this brief *résumé* of the Spahlinger treatment of tuberculosis I have simply given without comment a statement of the case as presented to me. In giving my own conclusions I would merely say that the inquiry was conducted without prejudice and with an open mind. It has been alleged that the medical profession is so prejudiced against Mr. Spahlinger because he is not one of their members that they are unable to give fair consideration to his claims. In this connexion I would point out that the medical profession look up to a French chemist, Pasteur, as the originator of the greatest advances in modern medicine.

#### Conclusions.

(1) So far as I know, with the exception of the evidence of a very few, which to my mind is unconvincing, medical evidence in support of the treatment is wanting.

(2) At the most treatment is in the experimental stage.

(3) On account of the limited supply of material, treatment is practically at a standstill, so that it is difficult to find cases and impossible from personal knowledge to express an opinion on its merits.

(4) The case is one of "not proven." It has neither been proved nor disproved.

(5) Mr. Spahlinger would have shown greater respect to the spirit of science and scientific research, if he had frankly published the experimental data on which the treatment is based and so given others an opportunity of testing their soundness; and unless he gives his compliance to the appointment of a committee of experts to make a complete investigation and a favourable report be received thereon, no government or public body would in my opinion be justified in advancing money in support of his treatment for tuberculosis.

#### MALIGNANT DISEASE OF THE UTERUS.

By MARION WANLISS, M.B., B.S.,

*Sir John Grice Cancer Research Scholar  
(From the Walter and Eliza Hall Institute for Research  
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THOUGH rare in the animal kingdom, in which individuals seldom outlive the reproductive period, malignant disease of the uterus causes a high mortality in the women of civilized countries. It has a world-wide distribution and native races are not immune. Robertson<sup>(1)</sup> reported twelve cases in the Gilbert Islands and Jonasson<sup>(2)</sup> met with five during a period of ten years at Reykjavik in Iceland.

Over the age of thirty-five one woman in seven and one man in eleven die of cancer and according to the statistical tables of England and Wales, the uterus in women up to the age of sixty-five, is the principal seat of the disease. In Australia in 1922 the total deaths from cancer were 5,052 of which 2,413 were females; of these latter the site of the malignant growth was in the generative organs in 484, in the stomach and liver in 679 and in the breast in 414.

The present paper is based upon the histological study of twenty-two specimens collected personally, together with twenty-seven microscopical preparations from the hospital collection. For statistical purposes seventy-one additional cases of malignancy were taken from the Melbourne Hospital records between 1916 and 1923.

It is unnecessary to discuss in detail the anatomy of the adult uterus, but it is important to recall the fact that whereas the cervical lip is covered by squamous epithelium, the mucous membrane of the canal and body is composed of columnar cells. The transition between these two types of epithelium is very clearly seen in the sixth month of fetal life. The squamous epithelium of the cervix dwindles down to a layer of pear-shaped cells which become continuous with the columnar epithelium of the cervical canal. The measurements of the adult uterus are usually given as 7.5 by 5 by 2.5 centimetres. In the course of its development there is a progressive increase in the proportionate length of the body of the uterus to the cervix which in the fetus projects far into the vagina. At the fifth month of intra-uterine life the ratio is 1:3; in the infant of six months, 1:2 and between the eighteenth and twenty-sixth month, 2:3. In phylogeny the uterus shows a corresponding phenomenon in the appearance for the first time in the higher primates of a definite fundus which, however, only develops late in fetal life.

Uterine malignancy includes carcinomata, sarcomata, chorio-epitheliomata and the very rare *carcinoma sarcomatosis*. A further subdivision of the carcinomata into strictly defined histological groups is almost impossible, such great structural variation occurs in different parts of the same tumour and even within the limits of a single microscopical section. To the two main groups—squamous-celled carcinomata (sometimes called epitheliomata,

despite a mesoblastic origin) and columnar-celled (adeno-) carcinomata, a third may be added in which a mixture of both types occurs. Such a distinction is somewhat artificial, since adeno-carcinomata of typical alveolar structure often contain patches of squamous cells. Fortunately, to the clinician it is the degree of malignancy that matters, not subtleties of histological grouping.

#### Cervical Carcinomata.

Adeno-carcinoma of the cervix is rare, occurring in only three out of a total of nineteen adeno-carcinomata in this series; its structure will be discussed with that of similar tumours of the *corpus uteri*.

#### GROUP I.

##### Squamous Carcinomata.

Of forty-seven tumours sectioned thirty were of this type. The average age of the patients was fifty years and the extremes were seventy-six and twenty-five. The incidence in the various decades, together with the percentage of females living in each, is shown in the accompanying table.

TABLE I.—EPITHELIOMA OF CERVIX—AGE INCIDENCE IN DECADES.

Age Groups.	Number of Patients.	Percentages of Females Living.
20 to 30 .. .. .	2	18.42%
30 to 40 .. .. .	17	14.21%
40 to 50 .. .. .	33	12.34%
50 to 60 .. .. .	32	7.29%
60 to 70 .. .. .	15	4.1 %
70 to 80 .. .. .	2	2.58%
Total 101		

In young people the course tends to be more rapid, a fact possibly related to the decrease in the blood supply of the uterus which occurs after the menopause.

Of the one hundred and one epitheliomata all were in married women, only two of whom were nulliparous, in contrast to 11.57% nulliparous women in a series of 458 cases taken at random from the records of the Melbourne Hospital. The average parity was 5.5 as against 3.9 in 458 non-cancerous married women of the same average age taken from the hospital records. Child-birth appears to play a more important rôle in the aetiology of the disease than does coitus, though probably only in so far as it leads to chronic inflammatory changes in the cervix. One of the frequent sequelæ is laceration; of fifty-seven parous women examined at the Queen Victoria Hospital seven only had healthy cervixes; in fifteen there was only a slight laceration; thirty-five were definitely lacerated, six of these being of the gross "shark-mouth" variety. These are followed by a low grade infection and the tissues are constantly bathed in a highly irritant muco-purulent acid discharge. Of these cases of cervical carcinoma many were associated with laceration, but I have not found an early carcinoma

commencing in the scar of a laceration. Erosion is often associated with these tears; it is usually caused by inflammation and desquamation of portions of cervical epithelium which are replaced over the ulcerated areas by cells of columnar type. Such areas have a bright red appearance owing to the less opaque character of their new epithelial covering.

The interchange which can occur between the two types of epithelium of which erosion furnishes an example, is remarkable and Huggins<sup>(3)</sup> has drawn attention to the fact that the reverse change can be seen in cervical glands which, probably after rupture, become lined by squamous cells. He regards fragments of epithelium cut off in this way from the surface as liable to undergo carcinomatous changes in the same way as are the epithelial displacements at the pylorus. In an eroded area there is often a suspicious hypertrophy of the epithelium around the glands, forming clusters of squamous cells, and Beckmann<sup>(4)</sup> quoted by Ewing reported a case treated for erosion for five years which subsequently became cancerous. Nicholson<sup>(5)</sup> considers that chronic irritation acts as a "liberating" rather than a primary exciting cause in cancer production.

In both *cervix* and *corpus uteri* certain lesions are spoken of as pre-cancerous and in the former the formation of downgrowths occurs from the regular stratified epithelium in which the cells, particularly those corresponding to the Malpighian layer, lose their orderly arrangement. These cells are frequently increased in size with indistinct boundaries and with increase in nuclear chromatin. The presence of tissue reaction may be of assistance in diagnosing malignant disease.

Cysts, often multiple, due to occlusion of the gland lumen, are of frequent occurrence in the cervix, but have little pathological significance. Polypi are also found; fifteen of these were sectioned and thirteen found to be adenomatous or adeno-myomatous; two had a curious angiomatous structure, but in no case was there any sign of malignant growth. No evidence has been adduced to show that cancer occurs more frequently in association with these benign tumours; malignant and benign growths were only found in conjunction in one case in which there was an adenomatous polypus in the fundal cavity and an adeno-carcinoma of the cervix.

#### Structure.

Microscopically the growths appear to be made up of columns and islets of epithelial cells placed in a stroma which is largely composed of the original muscular tissue of the cervix (see Figure I.). This varies in amount, sections from the growing edge showing much more than those from the centre of an advanced growth. Between the interlacing columns of cells the stroma is frequently replaced by masses of degenerating tissue containing only a few fragments of nuclear material. Sometimes the muscle fibres present show much cell infiltration round them (see Figure II.) and occasionally the number of eosinophile cells is striking. Polymorphs, the concomitants of secondary infection,

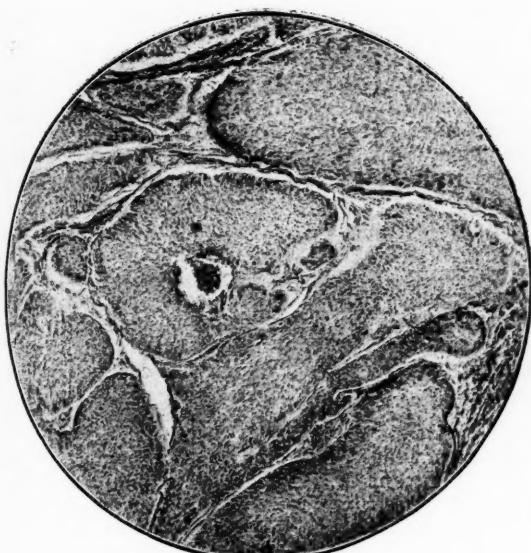


FIGURE I.

Epithelioma showing deeply staining cells at growing edge; in one island there is central necrosis.

are frequent and are particularly noticeable in curettage scrapings.

The cancer cells are large with correspondingly large nuclei in which hyperchromatosis and mitotic figures are frequently seen. Very large cells, three or four times the size of their fellows, are often present. They differ from foreign body giant cells in their obvious epithelial origin and in the possession of a large single nucleus, which is oval or rounded in shape. At the growing edge the cells



FIGURE III.

Adeno-carcinoma with tubules of varying size and shape lined with columnar epithelium. The stroma is very small in amount.

tend to become cubic or columnar and their oval nuclei are arranged with their long axes parallel. Cell nests are rare and keratinization is still more infrequent though both are common in epithelioma of the skin.

Great enlargement of the cervix is sometimes caused by carcinoma. In one case the cervix was 10 by 6.3 by 6.3 centimetres and the fundus merely a thin walled shell; in another the cervix measured 7.6 by 7.6 by 6.3 centimetres.

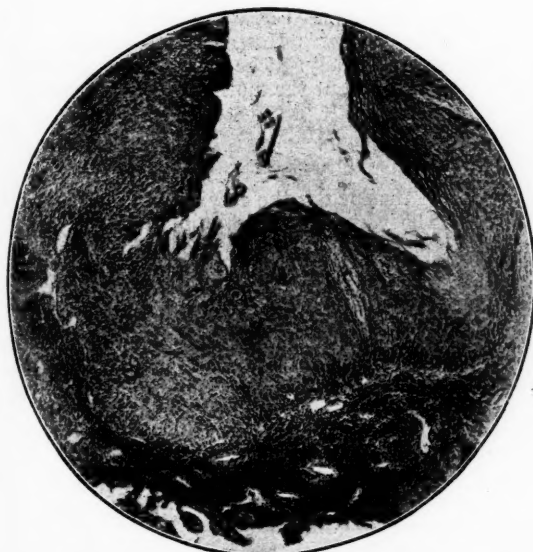


FIGURE II.

Section of cervix affected with early carcinoma, with increase in thickness of epithelium which contains a cell nest. The tissue reaction is evident.



FIGURE IV.

Adeno-carcinoma infiltrating muscle. The lumina of glands contain mucoid material and desquamated cells.



Epithelioma commences as a purely local lesion which first invades the *muscularis*, then spreads into the parametrium and finally infiltrates the bladder and the rectum. Even in advanced cases the body of the uterus may not be invaded; thus in one of the specimens from the Austin Hospital the upper portion of the cervix had ulcerated away, leaving a myomatous but not cancerous fundus swinging free on its ligaments. An interesting feature of these growths is the rarity of general dissemination in contrast to the widespread metastases found in chorio-epithelioma. Usually the inguinal lymphatic glands only are involved.

Mention must be made of a somewhat unusual type, a "diffuse" carcinoma met with both in cervix and corpus, three of which occurred in this series. The cells are of all sizes, those rounded in contour predominating, and have an insignificant amount of cytoplasm surrounding deeply staining nuclei. The most striking feature of the growth is the lack of cohesion between the cells which are arranged not in columns as in ordinary epitheliomata, but in a quite disorderly manner closely resembling the cell arrangement in sarcoma.

#### Symptoms.

Unfortunately early carcinoma of the cervix gives rise to no symptoms until ulceration occurs involving some of the superficial vessels. Hæmorrhage after coitus or douching is usually the earliest indication and is soon associated with menorrhagia or metrorrhagia. Later there is a thin watery or blood-stained discharge which eventually becomes fetid. Pain referred to the lower part of the abdomen or back occurs only when the cancer is well advanced. The majority of patients do not complain of loss of weight and cachexia is met with only in the last stages of the disease. Some of the *post mortem* specimens from the Austin Hospital show a large quantity of enveloping fat.

#### Diagnosis.

It cannot be too strongly stressed that in the earliest stages the disease is purely local and, if removed completely, will not recur. Hence the earlier the diagnosis, the more certain the hope of cure. It is rare to find a healthy cervix in a parous woman and every unhealthy cervix needs close attention, particularly in the fifth and sixth decades. The lesion should be diagnosed before it gives rise to symptoms; its presence may be suspected by the indurated, nodular, somewhat friable surface which the diseased cervix presents on digital examination and by the slight bleeding which usually ensues. Examination by means of a speculum discloses a dull red, possibly ulcerating surface which contrasts strikingly with the surrounding healthy tissues.

Curettage for diagnostic purposes must increase the risk of dissemination, but when there is doubt concerning the malignant nature of a growth situated in the canal or fundus, there seems to be no alternative; in the lower cervix, however, a preferable method is the removal of a portion for section by means of the cautery which kills the cells

through which it passes, and blocks the blood and lymph vessels.

#### Duration.

The duration of the disease varies within wide limits; some patients give a history of brownish discharge for years. The longest in this series was for ten years following the menopause. Others date the commencement of the trouble only a few weeks, the shortest being four. The duration of symptoms as given by the patient may obviously be fallacious, unless controlled by medical examination, for the symptoms may not be referable to the malignant tumour at the outset. In an internal organ in contradistinction to an external, as the lip, it is well-nigh impossible to gauge the actual commencement of the trouble.

#### Relation to Pregnancy.

Pregnancy does not occur if carcinoma of the cervix be advanced. De Lee<sup>(6)</sup> quotes only one case in 24,000 consecutive cases at the Chicago Lying-in Hospital; of reported cases 43% of mothers and 60% of children die during labour. It is obviously desirable to dispense with normal labour if possible because of the lack of dilatation, risk of severe tearing and consequent hæmorrhage of the rigid cervix. The risk of disseminating the growth is increased, as well as the very real danger of puerperal-sepsis. In one young woman of twenty-six years, who had had three pregnancies, one ending in the premature birth of the foetus, one ending in a full-time delivery with instruments and one ending in miscarriage, a malignant growth of the cervix was discovered when she was nine months pregnant, the posterior lip being markedly enlarged and friable with an excavation extending up the posterior aspect; it bled easily, but was freely movable with no obvious infiltration of the fornices and no palpable glands. A Cesarean section was performed at the Women's Hospital followed at once by a pan-hysterectomy. The child is now about twelve months old, but the mother died nine months after the operation.

#### Prophylaxis.

More can be done to prevent the occurrence of cancer in organs such as the cervix than is generally realized. The cause is as yet unknown, nevertheless the elimination of all known predisposing causes may be undertaken. To render this possible both the public and the profession need further enlightenment.

In America and Germany pamphlets have been broadcast which contain information concerning cancer particularly of the pelvic organs and the Health Society here is contemplating similar action. Boldt<sup>(7)</sup> disapproves of this publicity campaign in America, saying that "it is likely that of the large numbers of women suffering from leucorrhœa, those of the neurasthenic type will simply acquire an aggravation of their nervousness . . . will rush to physicians for examination and, if told they have no malignant disease, will be distrustful and seek the advice of others." He thinks the remedy lies in further education of the profession. This in





FIGURE V.  
Adeno-carcinoma invading muscle; some glands are lined by a single row of cells, some with multiple rows.

itself does not seem to be sufficient, for so many women are accustomed to suffer from leucorrhœa and some irregularities of menstruation that they attach little importance to a discharge, even if blood-stained, particularly if it occurs at the time of the menopause. Hence education of the lay public seems essential even at the risk of increasing neurasthenia in some women.

If more attention were paid by the profession to the repair of lacerated cervixes and the clearing up of local infection, it would not only diminish

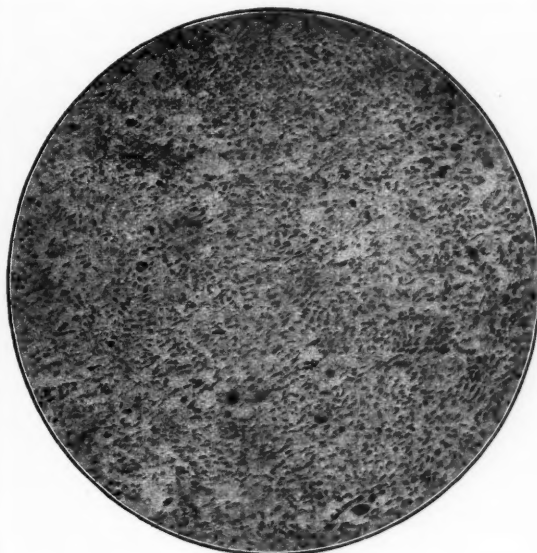


FIGURE VII.  
Spindle-celled sarcoma with giant cells and many thin walled blood vessels.

the incidence of the disease, but would in many cases lead to its detection before the appearance of symptoms.

#### GROUP II. Carcinoma of the Corpus.

Text-books still teach that the cervix, being lined with two types of epithelium, is subject to both squamous and adeno-carcinoma, whereas in the *corpus* which is covered by columnar epithelium, only the latter is found. This simple statement is not quite true, as will be seen later. There is a somewhat rare condition known as *leucoplakia uteri*



FIGURE VI.  
Epithelioma from a pregnant woman, aged twenty-six years, showing the columnar glands being replaced by squamous-celled carcinoma.

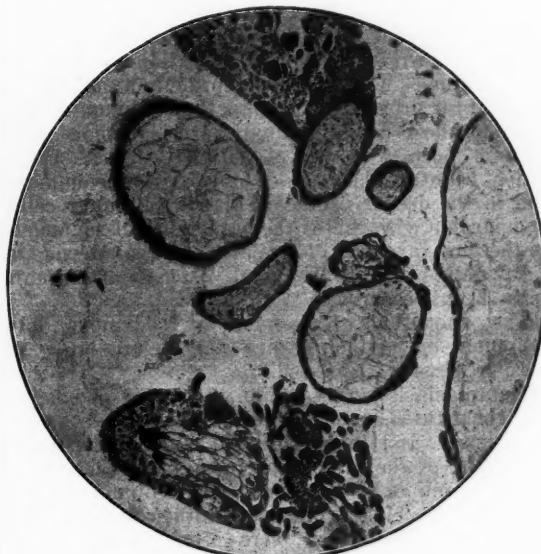


FIGURE VIII.  
Chorio-epithelioma showing Langhans's layer and syncytial overgrowth.

in which normal columnar cells surround patches of stratified epithelium. It may occur as a congenital defect, sometimes follows the use of escharotics after curettage and may be associated with senile endometritis. This interchange of columnar and squamous cells affords a striking instance of metaplasia, which may conveniently be discussed here.

Metaplasia occurs when one tissue assumes the character of another in its morphological and functional behaviour. The fertilized ovum is capable of development into cells of all kinds (totipotent), but cells resulting from its division, as in the morula stage, are more limited in their developmental potentialities (multipotent). Towards the end of embryonic life each cell normally becomes capable of development only in one direction (unipotent). This rule holds in the adult save in certain rare instances to which reference will presently be made. As cells become highly specialized, their power of division diminishes. Thus in stratified epithelium all the multiplication occurs in the round cells of the basal layer and the more highly differentiated cells nearer the surface cannot divide. Nicholson<sup>(8)</sup> propounds an attractive theory that epithelium is capable of developing in two directions, the dominant or normal for the part to which it belongs and the recessive which corresponds to the dominant character in the adjacent segment or organ. The recessive may on occasions become the dominant and metaplasia results. Metaplasia of the uterine epithelium is always a sign of very active if not neoplastic division and is always associated with some form of irritation.

Direct metaplasia, that is direct conversion of one differentiated tissue into another, probably never occurs. Indirect metaplasia occurs in connexion with inflammation which is not sufficiently acute to kill the tissues outright, but is sufficiently so to cause cell reaction and rapid multiplication. Change of columnar into squamous epithelium is more frequent than the reverse action. This is what one would expect with irritation as a causative factor, since stratified epithelium is better adapted for protective purposes than columnar. This metamorphosis of columnar into squamous epithelium occurs in polypi in the cervical canal which bear on the surface of attrition squamous and in the deeper protected glands columnar cells. Comparable with this is the occurrence of squamous epithelium in cases of prolapse of the uterus, in nasal polypi and in the nasal passages of patients with chronic catarrh.

The anomalous conversion of squamous into columnar epithelium occurs only in the case of erosion already discussed.

Metaplasia is very common in uterine neoplasms and constitutes one of the chief difficulties in grouping them. In Guy's Hospital during the years 1914-1918, of the fifteen carcinomata of the *corpus* operated on, only four were pure columnar-celled carcinomata, eight contained both columnar and squamous cells, which were often found in the same acinus and the three remaining tumours were pure squamous-celled carcinomata.

#### *Ætiology.*

Fibro-myomata seem to have some influence on the formation of cancer in the body of the uterus. Tracey Stephens<sup>(9)</sup> says that the majority of carcinomata in uteri which contain myomata, are found in the body not in the cervix, while the reverse holds good in women without fibroids. It must be remembered, however, that fibroids militate against pregnancy and that parity predisposes to cervical cancer. Ewing<sup>(4)</sup> considers that carcinomata of the body of the uterus are definitely associated with myomata, "local hyperæmia, chronic endometritis and ulceration of the mucosa being frequent concomitants of myomata which favour carcinomata."

Of eleven uteri with carcinomata of the *corpus*, two also contained fibroids; several were so far advanced that a small fibroid, unless subperitoneal, would be difficult to detect.

The average age of the patients was fifty-two years; seven were married and the average parity was two. These figures are too small to be of much value. Benign growths are so common, being variously estimated as occurring in 30% to 50% of all adult women, that many malignant growths both of the *cervix* and *corpus uteri* must of necessity be associated with them. A very great number of cases would need to be collected in order to determine statistically how strong their predisposing influence is. Ewing<sup>(10)</sup> has seen three cases of carcinoma arising in hypertrophied glands overlying the most prominent parts of fibromyomata. In none of the nineteen uteri containing fibroids, frequently multiple, which I examined, was any carcinoma demonstrable; great hypertrophy of the mucosa with increase in the cell layers lining the glands and occasional filling of the lumen were, however, frequently found. Apart from the small number of cases these results cannot be regarded as conclusive, since only the areas of maximum attrition over and opposite the most prominent parts of the myomata were examined and serial sections of the entire mucosa covering them were not made.

Of the two cases of carcinoma associated with fibroids, one was of particular interest.

A.W., single, *ætatis* forty-seven years, who had never menstruated, came to hospital complaining of a sanious discharge that had been present for nine months. On examination the vaginal outlet admitted one finger, the os was patulous and the uterus slightly enlarged. At operation the uterus was found to contain an intramural fibro-myoma and also a fungating growth which proved to be carcinomatous. Caseation, giant cells and tubercle bacilli were present in the apparently healthy endometrium removed some distance from the growth. In this case the fibroid was complicated by tuberculosis as well as carcinoma.

In the body of the uterus it is even more difficult to distinguish between advanced chronic inflammatory and "pre-cancerous" conditions than in the cervix. The appearances found in hypertrophic endometritis—hypertrophy and branching of the glands, multiplication of the layers of lining epithelium and a tendency towards occlusion of the lumen—when combined with irregularity of cell arrangement, hyperchromatosis and atypical

ILLUSTRATIONS TO DR. H. R. HODGKINSON AND DR. L. SWINNERTON DUKE'S ARTICLE.



FIGURE I.—Skiagram of foot, Köhler's disease.

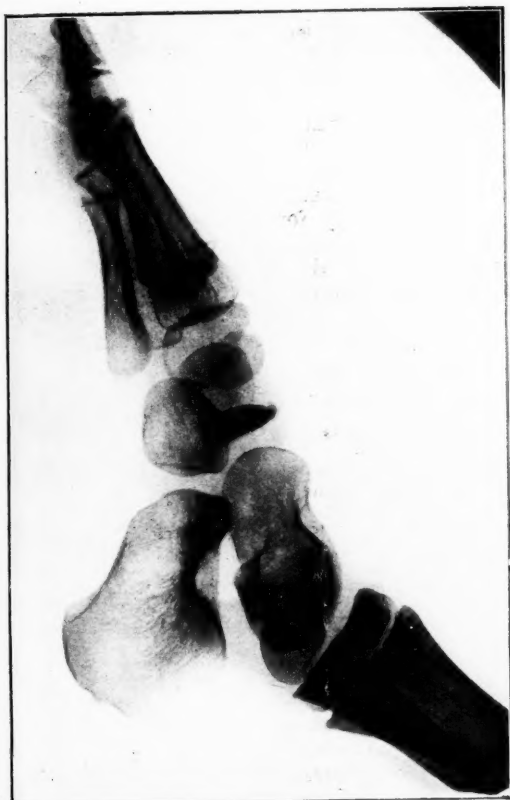


FIGURE II.—Skiagram of foot, Köhler's disease.

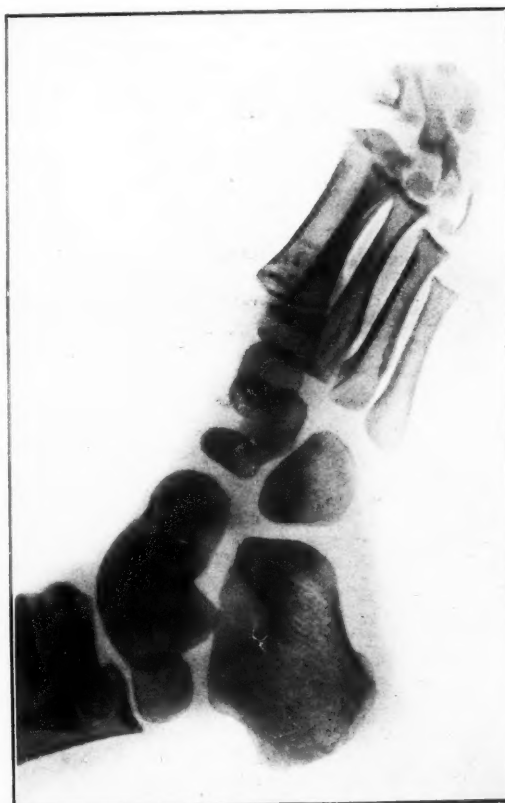
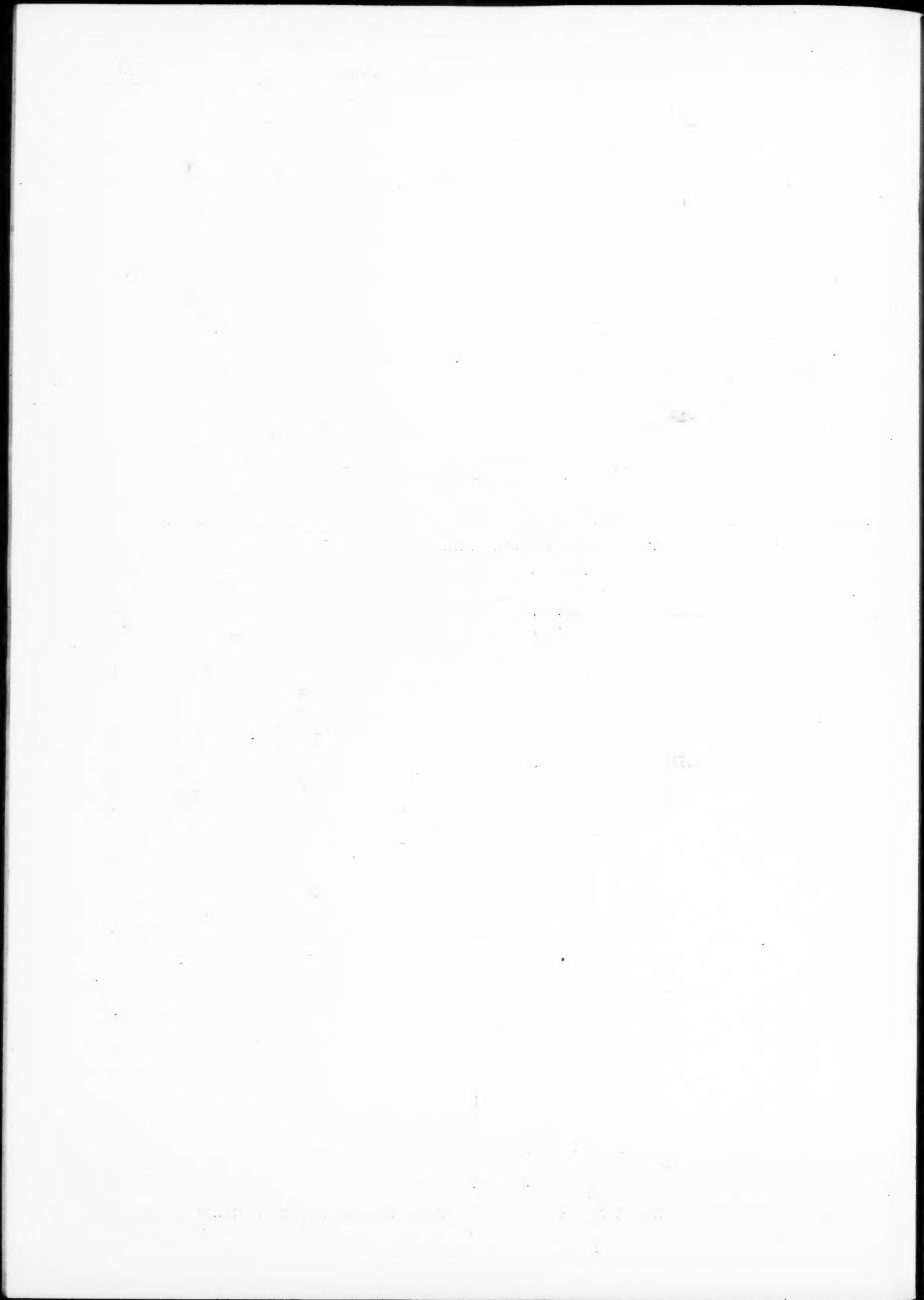


FIGURE III.—Skiagram of normal (right) foot.



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mitoses, constitute the so-called "pre-cancerous" stage.

#### Structure.

In some cases there is remarkably little infiltration of muscle. In one the entire *corpus* was filled with an extensive, fungating, cauliflower-like growth and on section the muscle was very little involved, though cell reaction was well marked.

It is only complicating a subject already difficult, to subdivide adeno-carcinomata into sub-groups, tubular and alveolar. In the thirteen cases recorded here only four were pure columnar-celled carcinomata, the remainder contained patches of typical squamous cells lying among the malignant glandular tissue. In some these squamous areas were large and numerous. The typical adeno-carcinoma (see Figure III.) has a very characteristic appearance in microscopical sections, a riotous overgrowth of glandular tissue forming tubules of all sizes, for the most part larger than normal and sometimes of eccentric shape, the lumen of which may contain mucoid material and degenerating cells (see Figure IV.). There is very little stroma in contrast to the appearance presented by hypertrophic endometritis in which the stroma increases with the hypertrophy of the glandular tissue. In areas where the muscle is being infiltrated, masses of closely packed glands are bounded by strands of muscle. The glands themselves vary in shape, size and thickness; most of them have a lumen surrounded by a single row of large, regularly arranged columnar cells with elongated, deeply staining nuclei. In some the cells are several layers thick (see Figure V.), but are orderly in their arrangement, but in others the alveolus is lined by a single layer of ragged, irregular pear-shaped cells, many of which lie free in the lumen. In very advanced growth the alveolar arrangement may be lost. The outer and younger cells retain their columnar shape, whereas the older ones by their wild growth have occluded the lumen, are lying loose without any definite arrangement and may form caseous masses.

Patches of squamous epithelium are far more common in columnar carcinoma than adenomatous inclusions in epithelioma, though epitheliomatous masses may necrose at the centre and form a pseudo-lumen, surrounded by cells more or less columnar in shape. This pseudo-lumen is usually choked with *débris* and squamous cells and the picture resembles only very advanced adeno-carcinoma.

#### Symptoms.

The symptoms are similar to those of cervical cancer, but do not appear until the disease is further advanced. This is due to the closure of the internal os, the operative dilatation of which may allow of the escape of quantities of necrotic blood-stained *débris*. The discharge tends to be less foetid than in cervical malignant tumours, since the uterine cavity unlike the vagina is usually sterile.

#### Spread.

The *corpus* is anatomically more isolated than the cervix, hence the involvement of adjacent tissues takes place later. There appears to be more tendency for columnar carcinoma involving the *corpus* to spread down into the cervical canal, than for squamous carcinoma of the cervix to spread up into the *corpus*.

#### GROUP III.

Group III. would become very large and engulf certainly most of Group II. and some of Group I. if it were made to include all tumours which actually were "mixed." Usually it is easy to determine whether the growth is primarily squamous-celled and has adopted in parts an alveolar or pseudo-alveolar structure or mainly adenomatous and after rapid division some cells have lost their columnar shape and become squamous; in these latter pure columnar secondary growths in the lymphatic glands provide a clue.

Only the doubtful cases in which neither type predominates are included in Group III.

There are several factors which may account for this "mixing" of growths:

- (a) Two distinct growths, columnar and squamous celled, may arise simultaneously and intermingle. It is conceivable that this may happen with extreme rarity.
- (b) The malignant cells of an epithelioma frequently infiltrate the adjacent glands, replacing the delicate epithelium and give rise to an alveolar structure lined by polygonal cells, not arranged in definite layers (see Figure VI.).
- (c) Metaplasia.
- (d) Necrosis at the centre of an epitheliomatous column with the formation of a pseudo-lumen. These last two factors have already been discussed.

The symptoms and spread of this group depend entirely upon the situation of the growth.

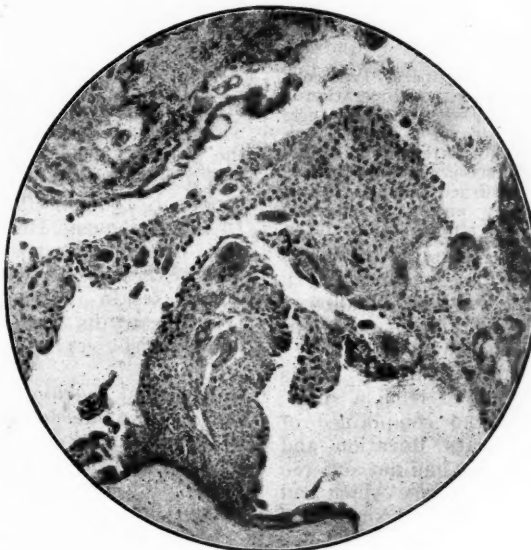


FIGURE IX.  
Chorio-epithelioma showing villi.

### Sarcoma.

Despite the large amount of muscular and fibrous tissue in the uterus and its latent power of hypertrophy, sarcoma is rare.

Concerning its aetiology there is much difference of opinion. Masson<sup>(11)</sup> states that it usually develops in pre-existing, benign fibro-myomata; Bland-Sutton on the contrary holds that such tumours are malignant from the beginning and Vogt<sup>(12)</sup> says that only 0.6% could be traced to any previously existing neoplasm. Though rare, they are more common in the *corpus* than in the cervix, save the grape-like sarcoma of the cervix (*sarcoma cervicis botryoides*) which is rarely found in infants and obviously must arise independently of any benign intermediary growth, for even if the *Anlage* of a future myoma existed in the foetus, it would be present in the *corpus* and not in the cervix.

In this collection there are only three undoubted sarcomata, two of the *corpus*, one of which was proven clinically by recurrence and one of the cervix which also recurred.

M.T., *etatis* forty-four years, a multipara, had complained of abdominal pain for a year. At operation a quantity of blood-stained fluid escaped when the peritoneal cavity was opened, a growth the size of a football was found in the uterus adherent to the posterior abdominal parietes and a supra-cervical hysterectomy was performed. Five months later the patient returned complaining of pain and swelling of the abdomen and a mixed-celled sarcoma was found arising from the stump of the uterus.

Since 1917 in the Melbourne Hospital there has been only one doubtful case which was possibly a rapidly growing myoma and was not confirmed clinically by recurrence, since the subsequent history of the patient is not available.

By the courtesy of an honorary surgeon I was enabled to obtain a uterus removed from a single woman, aged fifty-five years, who complained of abdominal swelling of some years' duration and increasing pain on the left side; she had not suffered from menorrhagia before the menopause which had occurred four years previously, but had since bled irregularly *per vaginam*. The uterus weighed 3.6 kilograms (eight pounds) and contained an enormous fibro-myoma with many small sub-peritoneal fibroids. On the left side above the ovary were two soft, friable, pinkish masses each about the size of a billiard ball, which were homogeneous on section in contrast to the translucent pearly-grey whorled appearance of the fibroids and which proved to be round-celled sarcomata. None of the other tumours showed any sign of malignancy.

#### Structure.

To talk of rapidly growing soft myomata which recur after removal is to create too fine a distinction. These should be regarded as sarcomatous, but it must be acknowledged that the microscopical diagnosis of spindle-celled sarcoma from rapidly growing myoma is notoriously difficult. The presence of many mitotic figures in a supposedly benign tumour is held to be very suggestive and according to Evans,<sup>(13)</sup> 12,000 per cubic millimetre of tissue almost certainly indicates malignancy.

The recurrent tumour already mentioned shows practically no intercellular substance, but is com-

posed of loose strands of cells cut, some longitudinally and some transversely. The cells are mainly of the large spindle variety, but vary greatly in size (see Figure VII.). Many giant cells are present, mostly oval, but some of irregular shape, frequently occurring in pairs; the nuclei of all cells show hyperchromatosis and the blood vessels are numerous and thin walled.

The other specimen is composed of round cells which possess a fair amount of cytoplasm and large deeply-stained nuclei which frequently show mitosis. These cells are united by delicate fibrils which are possibly artefacts. Occasional giant cells are present, with two or three nuclei, formed either by fusion of several cells or by failure of the cytoplasm to divide at the rate of nuclear division. Some large cells show two nuclei, each of which contains two or three nucleoli. The blood vessels are plentiful, thin walled and dilated and round the outer edge of the growth is a slender capsule showing round-celled infiltration.

### Chorio-Epithelioma.

This is a rare tumour arising from the trophoblast (the outer enveloping layer of fetal epiblast) which inherits the invasive powers characteristic of the parent chorionic tissue. This growth in about half the cases follows hydatidiform mole, but may commence after an abortion or a normal pregnancy. In the Melbourne Hospital in 1909 a woman, aged sixty-five years, whose last pregnancy must have been years before, died from chorio-epithelioma with metastases in the brain and lungs. Occasionally typical growths are found in teratomata of the male testis.

#### Structure.

A normal chorionic villus consists of a syncytial layer with nuclei in one or two rows, but sometimes gathered into knots which project resembling a giant cell; beneath this is a line of cuboidal cells and within this again is a connective tissue core supporting capillaries.

Chorio-epitheliomata are soft, vascular, dark coloured tumours frequently occupying the placental site. On microscopical section much degenerating tissue and blood clot, infiltrated by syncytial masses, are present; distorted villi may be seen with a capillary surrounded by a solid mass of polygonal cells and scattered everywhere is the acidophile protoplasm of the syncytium in protean shapes (see Figures VIII. and IX.).

### Carcinoma Sarcomatosis.

Rare cases of *carcinoma sarcomatosis* have been reported, occurring most frequently in the uterus, but also in the ovary, thyroid, mamma and bladder. Investigators working with transplantable rat and mouse epithelial tumours report the change of carcinoma into sarcoma, the epithelial tumour sometimes persisting and sometimes being entirely replaced by its sarcomatous elements. Aschoff<sup>(14)</sup> considers that this change in implanted tumours is morphological and due to diffuse arrangement of epithelial cells and not to any histological change of epithelium into connective tissue elements. He suggests the name *carcinoma sarcomatodes*. The

true carcinoma sarcomatosis may be due to two tumours arising coincidentally in one place and freely intermingling; it is possible that both cancerous and sarcomatous elements may arise from some common undifferentiated matrix or thirdly, it may be caused by the stroma of a carcinoma gradually undergoing sarcomatous degeneration, though the converse, epithelial elements in a sarcoma becoming cancerous, is, according to Aschoff, very rare.

Recent work on tissue culture by Drew<sup>(15)</sup> has shown the tremendous influence which the presence of stroma exerts upon parenchyma. Cultures of embryonic heart show typical myo-fibrillae in the muscle cells, but if these are grown in the absence of connective tissue cells, myo-fibrillae do not appear; similarly skin growing with connective tissue shows keratinization, whereas without it no keratinization appears. Perhaps the most striking example is that of parenchymatous renal tissue which in pure culture grows in sheets, but if mixed with a culture of fibroblasts, forms structures which resemble glomeruli and tubules.

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#### DISCUSSION ON KÖHLER'S DISEASE: WITH A REPORT OF A CASE.

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#### History.

THE patient, A. McD., a male, *etatis* six years, of Scottish parentage, was seen by us in consultation on August 15, 1924. He was limping and complained of pain and swelling on the inner side of his left foot. From his parents we elicited the following facts. There was no syphilis or

tuberculosis in the family. The patient was born in New Zealand; his infancy and childhood had been normal. Eight months ago he suffered with an impetiginous eruption of the legs with enlargement of the inguinal glands. Under medical treatment the condition resolved. Six months ago he was perfectly well. Five months ago he began to limp; with rest this limp disappeared. Two months ago he twisted his left foot in a chair and the limp returned, but not immediately. Three weeks ago a swelling appeared on the left foot.

#### Physical Examination.

The patient had a healthy appearance. All the systems were clear. There was no increase in his body temperature. A swelling five centimetres (two inches) in length, two and a half centimetres in breadth and two and a half centimetres in elevation was visible over the navicular region of the left foot. There was localized tenderness over the navicular bone. Neither heat, redness nor pain were present. The patient had a limp on walking.

X-ray examination by Dr. Paul Tillett, of Orange, revealed the presence of Köhler's disease.

#### DISCUSSION.

##### Ætiology.

Köhler's disease of the ossific nucleus of the tarsal navicular bone usually occurs in boys from three to nine years, the average age being six years. Macroscopically, as determined by X-ray examination, the bony nucleus is seen to be smaller and denser than usual and as a rule regular in outline, though it may be fragmented. Sometimes the condition is bilateral. The increase in density revealed in a radiogram may mean either hypercalcification<sup>(1)</sup> or true osseous sclerosis. It is supposed to be due to increase in the fully formed bone.

The exact pathology is unknown. Compression fracture, tardily followed by too rapid ossification, endocrine dysfunction, syphilis and tuberculosis are generally considered exempt from blame and in this particular case careful clinical investigation gave no cause to suspect the latter two as aetiological factors.

It would seem that a chronic infection may be responsible in one of two ways. (i.) The diminution in growth and the increase in density (sclerosis) of the bone may be merely the end results of chronic osteitis. P. Lacène and A. Mouchet<sup>(4)</sup> have recorded their opinion that Köhler's disease is an attenuated osteo-myelitis with the formation of small necrotic areas. The excessive calcification of the altered navicular bone they regard as a defence reaction of the bony tissue. This is the explanation perhaps most generally accepted. (ii.) The condition may be due to interference with the osteogenesis proceeding in the navicular nucleus by an infection too mild to produce destructive diminution in size as a primary result and osteo-sclerosis as an end result, but sufficiently virulent to interfere with the normal ossification of the cartilage. On this hypothesis the lack of growth is explained and the sclerosis thought to be due (as it is, indeed, when produced by a chronic osteitis) to a disturbed balance between osteoblastic and osteoclastic activity. The former predominates either relatively or absolutely. Just as the normal function of cells or cell groups in any part of the body is interfered with to a greater or lesser degree by the toxins of inflamma-



tion, so is the highly specialized function of cells concerned in osteogenesis. Thus a diminution in growth and a confusion of architecture due to abnormal genesis take place in the navicular nucleus.

This hypothesis is supported by the course of the disease. Unlike the sclerosis due to chronic osteitis, the sclerosis of Köhler's disease disappears almost invariably in from six to eighteen months. The bone increases in size until the normal for the age is reached. The clinical features may also be explained by this view of the pathology. Swelling and localized tenderness over the navicular bone need not be interpreted as due to inflammation, *per se*. They may equally well be a manifestation of the disturbed mechanics of the foot (compare *pes planus*). There is no need to emphasize the extreme importance of the navicular bone and its ligaments in this regard.

The reason for the localization of the infection in the navicular nucleus must be discussed. Infection is particularly liable to attack newly forming bone especially when the latter is subjected to trauma. Its localization in the damaged ossific nucleus of the navicular bone may be determined by the fact that this bone commences to ossify later and is thus more liable to infection during early ossification than the other bones of the tarsus. A consideration of the time of appearance of the ossific nuclei in the tarsal bones shows this. The navicular bone commences to ossify between the ages of three and five years<sup>(2)</sup> and is thus more exposed to the traumata incidental to the early period of active walking.

An analogy seems to exist between Schlatter's, Legg-Perthes's and Köhler's disease. The last has been met in association with the two former.

A brief reference to the history given above will show that the host suffering from a mild chronic infection harboured an organism attenuated by repeated culture *in vivo* and rendered relatively less virulent by increased bodily resistance.

There is a relationship in time, suggesting cause and effect, between trauma and the production and exacerbation of the signs and symptoms.

#### Diagnosis.

While X-ray confirmation of the diagnosis is essential, one ought to entertain the possibility of Köhler's disease when a boy, aged approximately six years, complains of limping, pain, swelling and localized tenderness over the navicular bone without obvious cause. Increased attention towards the disease may show that the condition is not as rare as we now think. The differential diagnosis has to be made after exclusion of sprains which do not resolve rapidly and so closely simulate Köhler's disease, from chronic osteitis (simple, syphilitic or tuberculous) and perhaps sarcoma.

#### Treatment and Prognosis.

Treatment consists in rest and support of the affected bone and ligaments best secured by a plaster boot thickened on the medial side. The longitudinal arch must be supported. The disease is self-limited and the prognosis excellent. Complete clinical and radiographical recovery takes place in six to eighteen months.

#### Acknowledgment.

We are indebted to Dr. Paul Tillett for the excellent skiagrams reproduced here.

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#### THE REMOTE RESULTS OF "GASSING."

By ANDREW STEWART, M.B., Ch.M. (Glasgow),  
Brisbane.

BEFORE making any comment on "gassing" it will be well to understand exactly what is implied by the term.

To begin with nearly all who were within the fighting zone after noxious and asphyxiating gases were employed in warfare, were more or less exposed to the vitiated atmosphere, still it can hardly be looked upon as reasonable to consider that any cough acquired at that time should be classed as due to "gassing" in the severe sense in which we use that word. "Gassing" should be applied exclusively to those who after inhaling the gas exhibit an intense inflammatory state of the whole respiratory tract, suffer from intense cough and great respiratory distress, amounting often to violent attacks of paroxysmal dyspnoea and hoarseness or loss of the voice altogether. This distressful condition lasted in the majority of patients for many weeks, so that frequently the symptoms above mentioned were in evidence on the patient's arrival in Queensland. It would lengthen these remarks unduly to go into the composition of the different gases employed, but I am told that with the gases used latterly the symptoms of gas poisoning were much delayed. But to shorten the discussion on this side issue the after effects were almost the same as those used in the initial stage of gas warfare. "Gassing" therefore may be divided into two classes, the first being the acute attack of which we have seen nothing here, and the second the after results of the acute attack of which we have had many instances.

The most prominent symptom in all is great shortness of breath, especially after exertion. In bad cases it is even present while the patient is in bed and in some causes distinct attacks of paroxysmal dyspnoea. Following on this closely is a very intense irritating paroxysmal cough and expectoration, occurring after protracted fits of coughing. The cough is present at different times of the day, but is more pronounced and trying to the patient towards the early hours of the morning. Strange to say, the pulse is not much accelerated and the blood pressure is unchanged, or if it be affected at all, there is a tendency in the upward direction. The temperature is normal throughout.



Impairment of the percussion note may be present over the upper lobes of both lungs, more particularly the right. As a rule the respiratory murmur is affected. It may be very weak and is then due to a deficient entry of air, caused by the fibrosed state of the bronchial tree. Or the quality of the respiratory murmur may assume the emphysematous type caused by the insufflation of the pulmonary vesicles in the neighbourhood of the sclerosis. Emphysematous breathing is often mistaken for the modified breathing associated with pulmonary tuberculosis. This was first clearly made out by Austin Flint, of New York, about the beginning of last century. To quote his own words: "The prolonged expiratory sound in emphysema is always low in pitch and blowing or non-tubular in quality, in these respects differing from the prolonged expiration which denotes solidification of the lung" (for example, pulmonary tuberculosis) "the latter being high in pitch and tubular in quality."

As a rule in these cases there is a noticeable absence of râles. Occasionally a few may be heard in the inter-scapular areas. After an attack of violent dyspnoea a few wheezing and sonorous rhonchi may be heard more especially in the right lung. During the quiet intervals râles are absent. When there are modifications of the respiratory murmur, these conditions are constant and are never accompanied by râles indicating softening of the pulmonary tissue. In these cases there is no increase in the tactile vocal fremitus nor in the vocal resonance.

The appetite is good. The patients only complain of vomiting when the cough has been specially dry and harassing so that they cough until they vomit. The striking point in all the patients is their healthy appearance when taking into account the excessively trying time they have.

The most striking evidence of all is the consistent absence of tubercle bacilli from the sputum. I am not going to say they are never present, but their lack of occurrence is so great as to be significant. In over one hundred genuinely "gassed" patients seen by me, there were only three whose sputum contained tubercle bacilli. Naturally the criticism may be offered that bacilli may have been present though not observed at the time of microscopical examination. The same argument is applicable to ordinary cases of pulmonary tuberculosis seen in civil life. Out of two thousand patients with pulmonary tuberculosis seen by me bacilli were present in 75% to 80%. The contrast is so striking that further comment is waste of time.

The tuberculin subcutaneous test is untrustworthy unless it gives a focal reaction.

Furthermore a man infected with tuberculosis is as likely to be "gassed" as any other. "Gassing" is not selective.

It must never be overlooked that pulmonary tuberculosis is only a local manifestation of a general infection similar to the sore throat of diphtheria, Peyer's patches in enteric fever and so forth,

whereas in fibrotic lungs the result of gas are obviously local. To make the contrast more evident, the differences may be tabulated as follows:

Pulmonary Tuberculosis.	Gas Cases.
Tubercle bacilli in sputum	Tubercle bacilli absent from sputum.
Disease in lung a local manifestation of a general infection.	Pulmonary condition local and due to an irritant.
General condition affected; due to a toxæmia.	General health good.
Modifications of respiratory murmur changeable with progress of disease and accompanied by râles.	Modification of respiratory murmur when present unchangeable and unaccompanied by râles.
Breathlessness when present due to toxæmia and never paroxysmal.	Breathlessness paroxysmal, simulating asthma.
Tachycardia due to toxæmia.	Pulse not accelerated.
Blood pressure always lowered.	Blood pressure unaffected.

In reviewing the whole circumstances and points of resemblance the diagnosis has been influenced in two ways. Firstly, too great reliance has been placed on X-ray impressions. A sure sign of diagnosis has been called for and the oracle of Delphi speaks in the form of an X-ray picture. To begin with radiologists seem to be unable to decide between themselves what constitutes a normal chest.

Furthermore, it must never be forgotten that a radiogram is a record of the life history of the chest dating from birth and it may be even pre-natal.

Though I am not a radiologist, it seems to me from my reading that opinions are very much divided as to the term "mottling" and the definition of that expression is so varied that it leads one to presume that this subject is still open to a great deal of investigation and further discussion.

The X-ray plate might be of great value only in those cases in which in the absence of other signs a distinct parenchymatous tuberculous lesion has been diagnosed by X-rays and in which Koch's hypodermic test has been applied afterwards. In these patients giving a reaction, the increased focal reaction will naturally deepen and increase the area of the shadow and will indicate a positive diagnosis of active disease. As far as I am aware, this combined method has never been applied here in diagnosis.

I have had patients in whom the signs were not very extensive nor were their symptoms unduly alarming, but the mottling was such that the interpretation seemed to be almost incompatible with

life or even poor health. One of my "gassed" patients demonstrated this point. The plate was interpreted as indicating very active tuberculous activity in one of his lungs. With the persistent absence of tubercle bacilli from his sputum the patient naturally objected (so would I if placed in the same position) to accept the "consumptive brand," as it meant losing his appointment which to him at least was a good one. This occurred well over two years ago. He is still alive, holds his position and enjoys good health, though he has an occasional "reminder." I warn all such patients that they will have a recurrence at times for the rest of their lives of wheezing and cough chiefly caused by climatic variations.

From the above it will rightly be inferred that I consider the presence of tubercle bacilli in the sputum as a *sine qua non* in the differential diagnosis.

The second presumable cause of faulty diagnosis in favour of tuberculosis is a sentimental reason only. The examiner sees the sufferer in great straits. His life is a burden to himself and to others on account of his inadequate pension. The four guineas weekly attracts and the good hearted examiner gives the unfortunate patient the benefit of the doubt. This may be humanitarian, but it is not scientific medicine.

#### Reference.

H. Emerson: "Flint's Physical Diagnosis," 1912.

## Reports of Cases.

### A CASE OF TICK PARALYSIS.

By H. ST. LEGER MOSS, M.B. (Sydney),  
Lindfield, New South Wales.

In October, 1923, I was called to see a lady, residing on the North Shore line who complained of being unable to read the newspaper owing to a blurring of the print and of weakness and peculiar pains of a sharp character in both legs. She then added, as if it was an after-thought, that there was a small abscess on her vulva.

The patient, aged thirty-five years, was lying in bed feeling generally out of sorts. She was well nourished and usually enjoyed good health. The temperature was normal and the pulse rate 60 per minute. The pupils were slightly dilated and reacted sluggishly to light. The knee jerks were present. The inability to bring the newspaper print into focus was of two days' duration. The pains in the legs had been present for about five days and she had noticed the abscess ten days previously. At first she felt itchy and later complained of pain in the region of the vulva. Nothing abnormal found in other systems.

On making an examination of the vulva I found a sodden and red-looking area of skin, the shape of a large almond, situated on the inner side of the right *labium major*. Protruding from the centre of this area was a small greenish-looking body about the size and shape of a split pea, which on closer examination proved to be the bloated body of a tick. The patient was unaware and quite surprised to learn the cause of her illness. She could not account for the presence of the tick except that it had become attached while she was gardening. I excised the tick with a surrounding small area of diseased tissue, cleaned the wound and applied simple dressings, saline purgatives and plenty of fluid were given.

Her normal sight returned within two days, pain gradually left the limbs and the lesion healed within a week. She made a good recovery.

## Reviews.

### THE LEUCOCYTE IN HEALTH AND DISEASE.

PERHAPS in no branch of medical science is a series of monographs, devoted to the more important but specialized problems, needed more than in pathology. Physiology, bio-chemistry and medicine are each well provided for, but a move in this direction in the case of the fundamental science has still to be made.

Colonel Bond, in "The Leucocyte in Health and Disease," is to be congratulated on the effort that he has put forward to meet a need, namely the application of direct observation to the study of the blood cells.<sup>1</sup> We have only to remember the results of such a method in bacteriology, especially in the elucidation of the morphology of the *Spirochæta pallida*, for proof of its importance and value. It is recognized that the leucocytes constitute an essential factor in the defensive mechanism of the body, yet how little is it realized that next to nothing is known of their intimate life history. It becomes obvious then, that an investigator who devotes much patient study to this question, is deserving of every encouragement.

Direct observation of the behaviour of blood cells by means of dark ground illumination under very simple conditions, is the method employed by Colonel Bond. We turn with a sigh of relief from the ordinary histological methods involving, as they do, the use of highly complex organic substances and little understood technique.

Amidst a wealth of detail and stimulating facts, certain statements call for special notice. Six simple tests of leucocytic activity are enunciated, depending on the power of emigration from a blood clot, the varying shape of the leucocytes and certain staining reactions, somewhat analogous to the "intra vitam" methods which are revolutionizing hæmatology in another direction. Whilst we may not wholly agree with Bond in regard to the importance and interpretation of the latter test, there seems to be little doubt that the others are of real value. The so-called "ameboid activity" of leucocytes is described in considerable detail, while the phagocytosis of red corpuscles, involving agglutination followed by ingestion and digestion of the erythrocytes, is particularly fascinating. The part played by blood serum and corpuscular acetone extracts in this is worthy of earnest consideration and is of some importance in the study of one of the most difficult problems in immunological science. The formation of, at any rate, one type of giant cell has been actually witnessed and some of the factors involved are briefly indicated.

Classification of leucocytes according to their "emigration picture" might well be investigated at great length and should prove more desirable than the present system. Some experiments with "Insulin" seem to show that this substance facilitates the metabolism of glucose by the leucocytes. Despite the specialized character of the subject, Colonel Bond writes in a very attractive manner and at times displays a flash of humour, as, for instance in the description of the leucocyte smears, "like snail tracks" and their "beard-like" appearance from the presence of fine fibrils. The conclusions drawn are extremely moderate and the balance preserved between physical and chemical phenomena on the one hand and the so-called "vitalistic" attributes on the other calls for some commendation. It is with real regret that we part from our tiny friends.

Many fine photo-micrographs and a fairly complete bibliography complete a book which can be recommended to all.

<sup>1</sup> "The Leucocyte in Health and in Disease: Being an Inquiry into Certain Phases of Leucocytic Activity," by C. J. Bond, C.M.G., F.R.C.S.: 1924. London: H. K. Lewis and Company, Limited: Royal 8vo., pp. 92, with 48 illustrations on 24 plates. Price: 12s. 6d. net.

## The Medical Journal of Australia

SATURDAY, NOVEMBER 22, 1924.

### The Treatment of Tuberculosis.

For a considerable time the medical press in England and the lay press in Australia have lent themselves for propaganda purposes to a clique bent on creating enthusiastic support for certain undisclosed alleged remedies for pulmonary tuberculosis. The main facts concerning the claims of Monsieur Spahlinger will be found in an interesting and instructive article by Sir David Hardie published on another page of this issue. We have purposely refrained from discussing this matter up to the present, firstly because there are so few facts on which to base a discussion and secondly because it is inadvisable to express definite opinions on immunological work unless and until the experimental data have been published and each has been controlled by independent investigators. It may be admitted that the fact that Monsieur Spahlinger is not a medical practitioner has evoked opposition from certain members of the medical profession. This attitude is unwise, unjust and untenable. If his investigations have led to the discovery of a good method of treating pulmonary tuberculosis, the medical profession should be prepared to admit the value of this work and acknowledge the achievement. Unfortunately Monsieur Spahlinger has not subscribed to the Hippocratic oath and has kept secret whatever knowledge his investigations may have disclosed. The medical profession deplores this method of working. It has the double disadvantage of rendering a reliable evaluation of the effect of the remedy impossible and of imposing a limitation on the number of persons to whom it might be applied. But it must be admitted that even a secret remedy may be valuable.

Monsieur Spahlinger has been very sparing in the information that he has given to the world. He claims to have isolated a number of toxins from the tubercle bacillus and to have prepared by their means a tuberculosis antitoxin and a vaccine or a

series of vaccines. A few medical practitioners have visited Geneva for the purpose of investigating his claims. As far as we are aware none of these gentlemen are trained bacteriologists and immunologists and in consequence they would not have been in a position to judge the soundness of the methods employed in the production of the so-called toxins and antitoxins. We may remind our readers of the many claims that have been made during the past twenty years of special discoveries of immunological products of the tubercle bacillus. Perhaps the most relevant of these was the work of Marmorek. This investigator worked at the Pasteur Institute in Paris. He was an enthusiast and was quite convinced that he had made a great discovery. His thesis was that by employing certain devices he could isolate "young forms" of tubercle bacilli from the periphery of his plate cultures and that with these "young forms" he could immunize guinea pigs against tuberculosis. The immunization of larger animals led him to introduce a serum for the treatment of the disease. Unfortunately he failed completely to demonstrate the immunizing power of the special cultures when given an opportunity of repeating his basal experiments elsewhere. Roux and Metchnikoff refused him permission to publish his work as from the Pasteur Institute. His experiments were repeated by several highly competent investigators and none of them obtained immunity in susceptible animals. A few clinicians tried the serum and some of them persuaded themselves that the patients benefited. It is very easy to form a favourable opinion concerning a remedy for a chronic disease with a varying course, even when no specific or curative effect is manifested. Marmorek's serum was soon shown to be useless. It was based on a misconception.

The world's most eminent bacteriologists have studied the natural and artificial culture of Koch's bacillus under very many different conditions. With one accord they have arrived at the conclusion that it does not produce an exotoxin. Unless the teaching of Ehrlich, Richet, Bordet and the other modern immunologists is all wrong, no antitoxin is produced in the animal body except as a reaction product to an exotoxin. Endotoxins are not true toxins and have no antigenic value. The protein of



the tubercle bacillus acts as an endotoxin, that is it exerts a specific, poisonous effect. But the poisonous symptoms of the protein of tubercle bacilli are not the symptoms of a tuberculous infection; they are the symptoms of a particular type of protein poisoning. Monsieur Spahlinger claims that he has prepared many forms of toxin. In the absence of more exact information, it is, of course, impossible to determine what these poisonous bodies are. Speculation is valueless in matters of this kind; he would, however, have to prove that they are not dissociation products of the protein of the bacillus of Koch. Others have endeavoured to obtain an antigenic action from "partial antigens" derived from the tubercle bacillus. It would lead us too far to examine in this place the justification for the assumption that a partial antigen has properties either of a more powerful or of a different kind to those of the full antigen. Nor is it necessary to enter upon such a discussion, for it is still believed that the tubercle bacillus is incapable of producing a toxin with true antigenic properties.

Sir David Hardie's verdict in connexion with Monsieur Spahlinger's claims is "not proven." No other verdict is at present possible in regard to his serum. There is in addition the question of his vaccines. Scores of investigators have modified Koch's technique and have produced tuberculins differing from old tuberculin and new tuberculin in a variety of ways. Dr. Camac Wilkinson states most emphatically that Monsieur Spahlinger's vaccines are nothing more or less than tuberculins. After all a vaccine is the whole or a portion of a bacterium causing a particular disease. There are many who hold a strong brief for the curative value of tuberculin which is a form of vaccine. Others hold just as emphatically that tuberculins are of no value as curative agents. Be this as it may, Monsieur Spahlinger can scarcely claim an original achievement in respect to his vaccines. In the circumstances the medical profession is bound to ignore all the claims of Monsieur Spahlinger in view of the fact that they appear to be untenable and fantastic, because he has failed to disclose the data on which they are based, and because the evidence of clinicians of any favourable action of his serum and vaccines, is extraordinarily weak.

## Current Comment.

### DEATH OF THE HUMAN HEART.

MANY years ago the physiology of the heart was studied to some extent by observations on the organ after removal from the body. The fact that the frog's heart continues to beat with relative regularity after it has been excised, has been known for over half a century. In the earlier editions of Michael Foster's "Text-book of Physiology" there is a very accurate and exact description of the nature of the contractions of the cardiac muscle when the *sinus venosus*, the auricles and the *sinus venosus*, the base of the ventricles, the auricles and the *sinus venosus* or the whole of one ventricle, one auricle and the sinus are left in the body. These early observations had for their object an elucidation of the nervous mechanism of the heart; the question of the changes due to the gradual death of the organ was not approached because it was then uncertain how the contraction waves were initiated and consequently comparisons with normal conditions were impossible. But in spite of the many defects in the data, it is surprising how the ingenuity of physiologists had led to the penetration of the fundamental principles governing the cardiac function. The central regulating mechanism was well known; the action of the vagus in inhibiting the heart's action had been minutely studied; the fact was recognized that the heart had an autonomic nervous apparatus situated in the auricular-ventricular node and that contractions initiated in these ganglion cells spread to the upper portion of the ventricles. About a third of a century ago some highly interesting observations were carried out in animals dying of asphyxia and it was assumed that the auricular appendage or the *sinus venosus* retained the power of contraction after all other parts of the heart had ceased to beat. Since that time modern cardiology has come into being and in many respects our knowledge of the cardiac mechanism has been revolutionized. The names of Einthoven, of Mackenzie and of Lewis may be mentioned in connexion with the pioneer work on the heart. It is therefore obvious that more attention has been paid to the normal living heart and to the diseased heart during life than to the mode of death of this organ. Lewis, however, has given some consideration to the dying heart in asphyxiated animals.

Death considered from a physiological point of view is a strangely complex process. The ultimate phenomena can be expressed in terms of chemistry, but the biological element cannot be measured nor can it be properly gauged either as to time or as to its nature. As long as life is undefined, death must remain mysterious. There is a stage in the functional failure of the heart beyond which recovery is impossible. When the nodal response to chemical stimuli is so disordered that contraction of muscular fibres takes place in an uncoordinated fashion, it is obvious that circulation cannot be maintained or restarted and recovery cannot occur. The dying heart may continue to exhibit a power to respond to stimuli for a time under these circumstances,



but no restoration of auricular-ventricular sequence will be effected, even if the stimulation be greatly increased. On the other hand the apparently dying heart may resume normal action even after all auditory or visible signs of life have disappeared, if the power of response to stimuli is not disorganized. For this reason this study has a practical significance.

Several workers have endeavoured to determine the sequence of events in death of the heart in animals under various conditions. Only a few observers have attempted to study the human heart during the period of clinical death. Dr. Morris H. Kahn and Dr. I. Goldstein have seized an opportunity of making electro-cardiographic records of seven persons covering the period of death.<sup>1</sup> Three of these persons died of heart disease, two died of pneumonia, one had encephalitis and the seventh had diabetic gangrene and arterio-sclerosis. One of the patients with heart disease had auricular fibrillation. In all the sinus lost control and the auricular-ventricular node assumed it. This observation is confirmed by the findings of others on animals. It is apparently a fundamental change in the physiology of the dying heart. The first sign of impending death of the organ is irritability and depression of the sinus node. At times the auricular-ventricular node exercises control before the sinus node becomes eliminated. Drs. Kahn and Goldstein hold that such double control indicates a bad prognosis. As the auricular-ventricular node dominates the rhythm, the sinus node is becoming increasingly depressed. Up to this time restoration is possible; after the sinus node has failed, no artificial stimulation can be of avail. Usually when this change has taken place, there is simultaneous contraction of the auricles and the ventricles. There is inadequate filling of the ventricles and a complete failure of functional adaptation of the two chambers of the heart. It thus follows that after the cessation of the ventricular systole the heart usually shows evidence of considerable activity. The electro-cardiographic records reveal a variety of anomalies once the sinus node has lost control. In some a surprising, temporary return of certain parts of the curve to something similar to the normal was observed. Thus in one record the *P* wave underwent a complete inversion for three cycles, after which the normal *P* wave reappeared. Later the same wave became long and undulating and gradually became inverted for a second time. Still later it returned to its upright form, but the *P-R* period was much prolonged. Eventually the ventricle went into fibrillation. It is assumed that this change of the *P* wave is due to vagus influence. The changes are not synchronous with the changes in the ventricular curves nor are they synchronous with inspiration and expiration. In nearly every record the height, direction and contour of the *S-T* period and of the *T* wave are changed at a relatively late period. The authors are unable to offer full explanations for all the anomalies of the records. But the most important lesson to be derived from their

study is that it is during the earlier stages of disturbance of the auricular action that supervision should be exercised. Intra-cardiac medication with adrenalin and other cardiac stimulants may revive a dying heart at this time, especially when re-oxygenation and removal of excess of carbon dioxide may bring about a restoration of normal muscle excitability. It is necessary to remember that the termination of the control of the sinus node is usually very abrupt.

#### SCLEREMA.

In April of this year Dr. Holmes à Court reported in this journal two cases of diffuse scleroderma and gave a useful *résumé* of the views which are held as to its causation. One of the few conditions which may be confused with scleroderma is *sclerema neonatorum*. This is a rare condition found in new born infants. The first abnormality generally noticed is stiffness of the skin and this may progress to such a degree that the skin cannot be pinched up. An amelioration of the condition may occur, but it is as a rule fatal. An interesting example of this disease was recently reported to the Royal Society of Medicine by Dr. W. G. Wylie and Dr. G. A. Harrison.<sup>2</sup> The child was a girl, aged five months. On the fifth day after birth the mother noticed that the child was becoming stiff. After some time the stiffness became less and it was noticed that hard lumps were forming under the skin. One of the swellings which was soft and diffuent, was aspirated and it was found to consist of masses of doubly refractive crystals. They were regarded as probably being cholesterol esters. Dr. W. G. Wylie in discussing the case said that it was necessary to distinguish between sclerema and pseudo-sclerema. In the former the child was usually under-sized, weakly and often premature. In the latter the child was very often neither under-sized nor weakly. While the former was as a rule fatal, children affected by the latter frequently recovered. He regarded the child demonstrated as being affected by the latter form. He referred to the opinion of Thomson that pseudo-sclerema might represent an infantile form of diffuse symmetrical scleroderma.

The chemical pathology of the condition was discussed by Dr. G. A. Harrison. He enumerated the various hypotheses advanced in connexion with the disease. In the first place it had been suggested that the fat became solidified on account of the sub-normal temperature which was frequently present. Other suggestions were a diminution in the oleic acid and an increase in the stearic and palmitic acid fat or a disturbance in fat metabolism. The blood cholesterol in the patient was at the low level of fifty-nine milligrammes per hundred cubic centimetres. Lastly there might be a local deposit of cholesterol from local conditions or from abnormal feeding. The latter certainly occurred in the patient under discussion, for "Virol" and whisky entered largely into the child's diet from its earliest days.

<sup>1</sup> The American Journal of the Medical Sciences, September, 1924.

<sup>2</sup> Proceedings of the Royal Society of Medicine, August, 1924.

## Abstracts from Current Medical Literature.

### MORPHOLOGY.

#### Central Tendon of the Diaphragm.

D. M. BLAIR (*Journal of Anatomy*, April, 1924) states that the diaphragm may be considered as a bilateral structure in which the symmetry has been masked by the great development of the inferior *vena cava*. A study of the arrangement of the fibres in the central tendon of the diaphragm reveals that the fibres form a decussation in the mid-line and that the opening for the inferior *vena cava* is included between the two arms of the decussation on the right side. If a search be made in a corresponding position on the left side, a small opening which varies greatly in size, is frequently to be observed. Through this opening passes a perforating vein which unites the venous system of the inferior surface with that of the superior surface of the diaphragm. The two venous systems so united both pass to the inferior *vena cava*. The inferior *vena cava* as it pierces the diaphragm represents the upper part of the right vitelline vein reconstituted after being broken up in the liver. The left vitelline vein is similarly broken up and it is usually believed that its *vena repectens* which would otherwise form a left hepatic vein, join the vein of the other side. The occurrence of the perforating vein, however, suggests that the supra-hepatic portion of the left vitelline is not completely obliterated. Similar conclusions were reached with regard to some simian diaphragms which were examined.

#### Proprio-ceptive Innervation of Tongue.

O. R. LANGWORTHY (*Journal of Comparative Neurology*, February 15, 1924) has demonstrated neuro-muscular spindles in the extrinsic tongue musculature of the cat, pig, opossum and rat. To determine which nerve carried the afferent fibres experiments were performed on the cat. Bilateral section of the lingual and glosso-pharyngeal nerves caused no apparent ataxia of the tongue and after death neuro-muscular spindles were seen to be still normal. Bilateral section of the hypoglossal nerve caused complete paralysis of the tongue and the muscles after death showed absence of the neuro-muscular spindles. Hence the hypoglossal nerve was assumed to carry the proprio-ceptive impulses. On close examination the hypoglossal nerve is found to be connected frequently with small sensory ganglia just before entering the brain stem in the case of the cat, dog, rabbit and other animals (Forrier's ganglion). When this ganglion was examined after section of the hypoglossal nerve its cells showed signs of degeneration,

but it was found when they were counted that the number of cells was hardly sufficient to supply all the neuro-muscular spindles and since the ganglion is inconstant, it seems that further investigation is needed to reveal more sensory cells whose fibres run in the hypoglossal nerve. The author also made a histological analysis of the *nervus hypoglossus lingualis*, *glossopharyngeus* and *chorda tympani* as regards medullated and non-medullated fibres.

#### Effects of X-Rays on Tadpoles.

H. A. COLWELL, M. S. THOMSON AND C. P. G. WAKELEY (*Journal of Anatomy*, October, 1923) found that irradiation of frog tadpoles by the unscreened radiations from a Coolidge tube caused characteristic changes to appear in the epidermis and corium. The tadpoles were irradiated for one and a half or two hours in a dish of water 3.75 centimetres deep and the results were tested by killing specimens at varying intervals up to seven days afterwards and examining them microscopically. The nuclei showed evidence of increased activity up to about the third day after irradiation, but by the seventh day they had degenerated. The epithelium manifested at first a loss of cell outline and by the second day an invasion of the corium, but by the seventh day degeneration had occurred and no structure was visible. The pigment cells, normally arborescent, became rounded after twenty-four hours, but on the second day they were aborescent and by the seventh day they were fragmented. Irradiation for five hours caused similar series of changes, but degeneration occurred by the fourth day. Another series of tadpoles were irradiated for five hours in shallow dishes with only 1.25 centimetres of water, the above changes were seen and in addition the fibrous tissue of the corium was affected. By the second day the white fibres were swollen and oedematous, cloudy swelling occurred in the cells and some of the latter were shrunken and degenerate. The pigment cells were fragmented completely after forty-eight hours. A further series was tested in 3.75 centimetres of water to which 0.04% of "Protargol" had been added. The irradiation lasted for two hours and owing to the presence of the minute colloidal silver particles the effects were due not only to the primary beam, but also to the soft secondary rays given off by the silver. After forty-eight hours there was a general hyper-activity, but no degeneration. The pigment cells were very arborescent. The effects were not confined to patches in the case of this last experiment, in the other experiments the results tended to occur in patches.

#### The Sacro-Iliac Joint.

R. BROOKE (*Journal of Anatomy*, July, 1924) describes the sacro-iliac articulation as a diarthrodial joint. As a result of the examination of two hundred specimens of all ages, he con-

cludes that the fibrous bands usually described as crossing the joint cavity are due to senile and pathological changes. Until puberty little difference is observed between the two sexes, but after that time the joint is modified for strength in the male and for mobility in the female. A maximum of mobility is attained at the end of pregnancy. In the infant and the pregnant woman the joint probably takes part in movements of the lower portion of the spine just as it does in the lower monkeys such *Macacus* and *Resus*. However, in the normal adult the range of movement is probably only equal in amount to that between the bodies of adjacent vertebrae. In old age the joint becomes ankylosed in the male and tends towards that condition in the female. The pelvic brim is enlarged during parturition by movements in a transverse direction as well as by the rotary movement described by Walcherew. The joint cavity, which is well defined with a continuous fringe of synovial membrane, was defined by distension with coloured gelatine and the presence of the synovial membrane was confirmed by a series of microscopical sections.

#### Sheath Cell or Neuroblast.

ROSS G. HARRISON (*Journal of Comparative Neurology*, June 15, 1924) discusses the origin and development of peripheral nerves. Spinal motor axones first arise in the tadpoles of *Rana* as processes of neuroblasts which occupy the ventral portion of the medullary cord. Whilst these nerves are developing, the neural crest segments form the spinal ganglia and these ganglia rudiments come into relation with the developing motor nerves. As the motor nerves continue to grow, spindle-shaped cells accompany them and these sheath cells are derived from the ganglion rudiment. If the neural crest is removed naked motor nerves develop. If any of the crest remains, the motor nerves have the usual sheath. When motor nerves with naked axis cylinders have been developed after the complete removal of the ganglion crest, sheath cells develop at a late stage apparently as outgrowths from the cord. If the ventral region of the cord or the whole cord with the exception of the ganglia is removed, sensory nerves develop, but no motor nerves. Hence the sheath cells which are present, cannot produce motor nerves in the absence of the motor portion of the cord. So it appears that the neuroblast is the essential factor in the development of the peripheral nerves. The sheath cells which are not mesodermal but ectodermal in origin, are to be regarded as the neuroglia of the peripheral nerves.

#### Function in Embryonic Nervous System.

G. E. COGHILL (*Journal of Comparative Neurology*, June 15, 1924) publishes further results of his investigations into the correlation between anatomi-

cal development and function in the ontogeny of the amphibia. Amblystoma larvae begin to respond to touch when the floor plate cells reach a certain degree of development in the region of the fifth myotome at the level of the roots of the fifth and seventh nerves. The further development of the behaviour pattern up to swimming is correlated with the further development of a commissure in the floor plate region. Nerve cells grow and function at the same time and correlated with a definite elaboration of the behaviour is a growth of specific neurones. In its earlier functional condition the synapse occurs between brush-like endings. When the neuroblast begins to function, fibrils have just appeared in it and they run from the perikaryon into the processes.

## MORBID ANATOMY.

### Atresia of Oesophagus.

R. H. McLELLAN and T. J. ELTERICH (*American Journal of Diseases of Children*, October, 1923) report an instance of atresia of the oesophagus with tracheo-oesophageal fistula. General examination of the patient, a boy five days old, revealed nothing unusual. Apart from the anomaly of the oesophagus there was a Meckel's diverticulum. The upper end of the oesophagus ended in a slightly dilated, blind and rounded extremity 3.5 centimetres below the cricoid cartilage and just above the bifurcation of the trachea. This portion reached a diameter of one centimetre. Its extremity was rounded off and its lumen, slightly dilated, reached through its entire length. It was completely separated from the trachea in front. The larynx presented an entirely normal appearance and the formation of the entrance of both larynx and oesophagus from the pharynx was normal. There was no connexion between the upper part of the oesophagus and the lower part. The lower part of the oesophagus penetrated the diaphragm in a normal manner. As it was traced upwards it was reduced in diameter and joined the posterior wall of the trachea just above the bifurcation. The trachea was opened and a slit-like fistula was found, which admitted a probe into the lower part of the oesophagus. This was found to have a continuous lumen into the cardia of the stomach. The wall of the oesophagus merged into that of the trachea and there was no break in the mucosa through the fistula. Many theories as to aetiology have been put forward: injury to sperm or ovum, trauma to fetus or mother, abnormalities of the placenta, hydramnios, disease in the parents especially syphilis, atrophy of the oesophagus from pressure by the primitive development of the lumen and failure of the lower end of the oesophageal tracheal fold to develop have been

suggested. The theory of foetal inflammation has received more credence than any of the older views. The presence of an anomaly of all but universal position and type with no evidence of previous inflammatory changes in the tissues involved has made any inflammatory factor in the aetiology impossible. The only tenable theory is that based on a malformation of the *Anlage* of the oesophagus and trachea. The authors give an illustrated account of the normal and faulty development of the oesophagus and respiratory system and end with a summary of the literature on the subject.

### Cardiac Anomalies.

MAUDE E. ABBOTT (*Bulletin of the International Association of Medical Museums*, Number X.) describes specimens from two infants who died as the result of congenital heart disease. The first patient died on the ninth day after birth and *post mortem* examination revealed pulmonary atresia and bicuspid stenosis of inflammatory origin; ventricular septum closed; *foramen ovale* and *ductus arteriosus* widely patent; aplasia of right ventricle; *morbus ceruleus* due to right to left shunt of the circulation and peripheral stasis. A large aorta arose in its normal position to the right and posteriorly and a thin-walled pulmonary artery about half the diameter of the aorta ascended anteriorly and to the left, bifurcating in the usual situation into branches for each lung. The pulmonary artery continued onward and was of the same size as its branches. It entered the aorta opposite the left subclavian artery; this was the widely patent *ductus arteriosus*. At the level of the pulmonary valves the artery emerged from the site of an orifice that was reduced to a mere dimple by fusion and contraction of the pulmonary cusps. The right auricle was dilated and communicated freely with the left through a gaping *foramen ovale*; the tricuspid segments were thickened and irregularly contracted and the tricuspid orifice was definitely narrowed; the cavity of the right ventricle was reduced to a mere chink with thick hypertrophied walls. The ventricular septum was normally developed and completely closed. The left chambers were extremely capacious and thick-walled. The author remarks that this specimen provides an excellent example of the inflammatory type of congenital cardiac disease in which the cardiac septa are completely closed and the heart has reached full development; but, through the incidence of foetal endocarditis, a right-sided valvular lesion has supervened which has set up certain mechanical obstructions to the circulation. The author states that an interesting question presents itself as to the nature of the infection which has produced this foetal endocarditis: whether it be of the same nature as the virus of the so-called rheumatic group of endocarditis or whether it be produced by some more acute bacterial

infection. The heart muscle of this specimen was carefully examined for Aschoff bodies, but none were found. Their absence is not of much weight in arguing against a rheumatic origin of the endocarditis, for there were no recent vegetations, the valvular lesions having long passed the acute stage. The only deviations from the normal in the myocardium were such as could be ascribed to the condition of *morbus ceruleus* that undoubtedly existed, for there was considerable congestion and both arteries and veins had thickened oedematous walls and dilated tortuous channels. The second patient died of broncho-pneumonia at the age of ten months. The child was the subject of Mongolian idiocy and the heart manifested persistent *ostium primum* with cleavage of mitral and tricuspid segments, there was no cyanosis. The author states that absence of cyanosis is a characteristic feature of intra-auricular septal defects (including patent *foramen ovale*) and is explained by the fact that in such cases under normal conditions the pressure is higher in the left side of the heart and the current of blood passes from left to right through the defect, a "left to right shunt" from the arterial into the venous system resulting. Another point of great interest is the association with Mongolian idiocy. Dr. John Thomson, of Edinburgh, has evidence of cardiac defect in one out of every five hearts from Mongolian idiots that he has examined.

### Myelogenous Leuchæmia.

F. A. McJUNKIN (*Bulletin of the International Association of Medical Museums*, Number X.) describes large multiple leuchæmic tumours in a white male patient, thirty years old, suffering from myelogenous leuchæmia. The tumour cells resembled myeloblasts and myelocytes. Tumours were present in the femur, ribs, iliac fossa and spinal cord. The cord tumour did not infiltrate the entire thickness of the *dura mater*. It was quite homogeneous and consisted chiefly of large mono-nucleated cells supported by a delicate fibrous stroma. About one-half of these mono-nuclear cells had a distinct eosin-staining cytoplasm with fine granulation. Poly-nuclear neutrophilic cells and eosinophilic cells were present in the proportion of one to about twenty of the mono-nuclear cells. The predominating mono-nuclear cells had round or somewhat indented nuclei which in many of the cells were somewhat eccentrically situated. Some of the cells had large lobulated nuclei. Mitoses were numerous. More than one-half of the total number of mono-nucleated cells present reacted with benzidin (peroxydase test). Many of the reacting cells had the usual appearance of neutrophilic myelocytes. The cells in mitosis did not react. Sections of both femur and iliac growth contained extensive infiltration of voluntary muscle.



## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE EYE, EAR, NOSE AND THROAT SECTION OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on September 19, 1924, Dr. J. LOCKHART GIBSON, the President, in the chair.

#### Multiple Osteomata of Bones of Skull.

Dr. H. V. FOXTON showed a male patient, aged thirty-seven years. The patient was a native of Rockhampton and when six months of age it had been noticed that he had a small, hard nodule behind his left ear. Fourteen years later a surgeon had removed this. Subsequently the base of the excrescence had become larger and others had gradually appeared until at the age of twenty-five years he had had a series of almost continuous outgrowths, extremely hard and following roughly the origin of the left temporal muscle and also involving the whole of the mastoid process. A nodule had appeared also on the left malar bone and another on the left mental tubercle. Some of these exostoses were five centimetres (two inches) in height. In the year 1919 at the war the patient had been blown up and his left ear had begun to discharge. This had occasioned a stay in hospital for four months. At this time the left auditory meatus had seemed to be almost closed by exostoses and a British specialist had advised that operation was too dangerous. The patient had stated that the bony outgrowths were growing steadily all the time and blocking his ear more completely. In the year 1922 he had begun to experience severe pain in the left ear and Dr. Foxton had first seen him at this time, when there was a slight discharge of pus from a meatus that would not admit the finest probe. On March 23, 1922, Dr. Foxton had operated by the usual mastoid route, but could find no meatus. After excavating to a depth of 2.5 centimetres (one inch) he had desisted, as there was no meatus to guide him. The bone had been extremely hard and the field much obscured by bleeding. Pain had been relieved a good deal and on July 24, 1922, he had operated again, having as a guide a point from which pus occasionally exuded, though no probe could be introduced. This time he had opened up the middle ear which was only about four millimetres (one-sixth of an inch) in diameter and fully 3.75 centimetres (one and a half inches) from the surface; it had also been displaced forwards. There had been no trace of a mastoid antrum and he had been unable to find any ossicles. This operation had relieved the patient until a few months previously when he had begun to feel discomfort. The exostoses had again occluded the meatus. Dr. Foxton had operated again. He expressed the opinion that the size of the artificially formed meatus should give the patient a long or permanent respite from trouble. He had no hearing in the left ear. One of the difficulties of operating had been the extraordinary hardness of the bone which made chiselling in the depths of a long channel a trying task, the bone had been too hard for the use of curettes. The lack of bilateral symmetry in these growths would seem to give no support to the theory that osteomata were allied to the bony deformities of acromegaly.

#### Retro-Bulbar Neuritis.

Dr. W. WALLIS HOARE showed a male patient, aged fifty-four years, whom he had first seen in January, 1924. The patient had complained of falling sight. His right vision had been  $\frac{1}{20}$ , and the vision in the left eye had been " $\frac{1}{20}$  two letters." Nothing abnormal had been found in either fundus. The fields of vision had been normal, the urine had been normal, nothing abnormal had been found on X-ray examination, there had been no central colour scotoma and the serum had not reacted to the Wassermann test. Owing to the admission of moderate tobacco and alcohol consumption, a tentative diagnosis of toxic amblyopia had been made. After several weeks the vision had been reduced to  $\frac{1}{200}$  in the right eye and  $\frac{1}{20}$  in the left. It had been noticed that the patient was afflicted with foul pyorrhoea. Several teeth had been extracted and

the rest had been treated. Almost immediately vision had improved. At the time of demonstration the vision of the right eye was  $\frac{1}{20}$  and the vision in the left was  $\frac{1}{4}$ . This improvement had taken place notwithstanding the admission of the patient that he smoked more than one ounce of tobacco a week and possibly consumed about seven mixed alcoholic drinks in a day. Dr. Hoare pointed out that there was definite pallor of both optic discs on the temporal side and that in addition a positive result had been obtained to Young's threshold test. Dr. Hoare said that he showed the patient as possibly suffering from retro-bulbar neuritis due to pyorrhoea.

Dr. LOCKHART GIBSON said that he thought the condition, judging from the appearance and history, was one of toxic amblyopia.

#### Post-Operative Iritis.

Dr. Hoare also showed a patient, aged sixty-five years, on whom he had operated at the beginning of 1924 for immature cataract of the left eye. Slight post-operative reaction had occurred. About six weeks later needling had been carried out and the patient had become affected by one of the most severe attacks of iritis which Dr. Hoare had ever seen. The attack had lasted for four or five months and had not yielded to any form of treatment including inunction, repeated wet cuppings, large doses of salicylates, all sorts of heat and sub-conjunctival injections of cyanide of mercury. At one time the patient had become mentally affected from prolonged pain and insomnia and the use of mydriatics. Finally as a last resort diathermy had been applied twice daily. The eye had improved from almost the first application and in six weeks the condition in the eye had almost completely resolved. Dr. Hoare pointed out that the cornea was bright and clear and that the light projection was perfect. There was no trace of ciliary injection and the small pupil was closed with a fibrous mat as in the peripheral iridectomy coloboma.<sup>1</sup>

Dr. J. LOCKHART GIBSON said that considering the occluded and very small pupil, an optical iridectomy would be more likely to succeed than the proposed needling.

#### Congenital Ptosis.

Dr. Hoare also showed photographs of a patient both before and after operation for congenital ptosis by Motais's method. Dr. Hoare said that he had used Motais's technique modified as advised by Shoemaker and in addition had sutured the grafted tongue of the superior rectus in two places to the tarsus in order to obtain a fan-like attachment and thus prevent the sharp arching of the upper lid so often seen when Motais's original technique was followed.

Dr. LOCKHART GIBSON said that he thought that the result in one of the eyes was excellent and as good as could be obtained by any operation for ptosis.

#### False Macula.

Dr. E. O. MARKS showed a girl, aged nine years, who was suffering from convergent squint of long duration due presumably to a hypermetropia of four diopters. The left eye was convergent and amblyopic. Vision in the left eye was less than  $\frac{1}{200}$ . No abnormality was observable in either fundus. On asking the child to look at an object in front of her the right eye fixed the object in vision, if both eyes were uncovered. If the right eye was covered, the left eye became fixed in the same convergent position which it had occupied when the right was not covered. When the object was moved about, the left eye followed it and continued to fix it in vision eccentrically. When direct ophthalmoscopic examination was carried out and the child was asked to look at the light, the left eye was turned so that the most brightly illuminated portion of the fundus was to the inner side of and close to the disc.

#### Dislocated Lens.

Dr. Marks also showed a woman, aged fifty years, who had been blind in the right eye for at least fifteen years

<sup>1</sup>Dr. Hoare writes that since the meeting at which the patient was shown, the eye has been needled. No reaction took place and a clear pupil resulted.

when first seen by him in September, 1923, on account of an attack of acute glaucoma in the right eye. Conditions at that time had not permitted an ophthalmoscopic examination and the patient had been sent to the Brisbane General Hospital. Here the patient had been put under the care of Dr. George Thomson and the glaucoma had subsided without the necessity of operation. The patient had not been seen again until recently. At the time of examination the tension of the eye was normal or slightly below normal as determined by digital examination. The pupil was dilated and the iris atrophic. The lens which was cataractous, was completely dislocated and was shaking about freely behind the pupil. The other eye was apparently healthy.

#### Chronic Sinus Infection.

DR. E. CULPIN showed a married woman who had been referred to him in December, 1921. She had been looked upon as an asthmatic and it had been thought that she was suffering from pulmonary tuberculosis. This diagnosis, however, had been questioned. No signs of sinus disease had then been discovered, but an extensive deflection of the nasal septum to the left had been resected. This had been followed by signs of trouble in the left frontal sinus. The sinus had been opened intra-nasally and the bone had been found to be extremely thin. Later on the maxillary antra had been suspected and a double proof puncture had been performed. Fluid used to irrigate the antra had returned clear. A week later both antra had been full of pus. Subsequently a double antrum operation had been performed. The bones had again been found to be extremely thin and the bony floor of the orbit and roof of the mouth had been perforated. A very profuse reaction had followed the operation. A visit to Dalby Sanatorium had apparently caused disappearance of the nasal condition, but had not benefited the asthma. Shortly after return of the patient to Brisbane a very profuse muco-purulent discharge had appeared. Both antra had been opened and found practically filled with firm fibrous tissue which had been left alone. Several months later both sphenoids had been opened up, but had apparently been healthy. Severe pain had continued over the left frontal sinus and a Killian operation had been performed. The sinus had been full of polypoid mucosa and pus. This had relieved the extreme pain on that side. Some months later at the patient's urgent request a very small left frontal sinus had been similarly treated. At these two operations it had been noted that the bone in the region of the ethmoid was very hard. At the time of demonstration the patient was subject to attacks of extremely profuse muco-purulent discharge from both sides of the nose. Dr. Culpin said that these attacks might last for a period of two months and then disappear for a similar length of time. The patient still complained of some pain in the right supra-orbital region and was subject to attacks of asthma, her general condition had improved to a considerable extent.

#### Tuberculous or Malignant Lesion of the Larynx.

Dr. Culpin also showed a male patient, a married man, aged about thirty-five years, who was well developed and endowed with adipose tissue. The patient had complained of an attack of hoarseness of six weeks' duration. Examination of the larynx had revealed fixation of the left vocal cord and arytenoid cartilage. No ulcer or other abnormal condition had been noted. The patient's serum had not reacted to the Wassermann test. Examination by a physician and a radiologist had failed to reveal any abnormality. About two weeks later a little mobility had been noted, but a small whitish area about five millimetres in diameter with finger-like projections had been discovered in the inter-arytenoid region. Dr. Culpin thought that this lesion was either tuberculous or malignant in nature.

#### Hoarseness Due to Swelling.

Dr. Culpin's third patient was a man, aged sixty years, married, who complained of hoarseness of one month's duration. On examination a bilateral swelling had been present below each vocal cord. The Wassermann test applied to the serum had yielded a strong reaction. At the time of demonstration the swelling was diminishing.

#### Optic Neuritis.

DR. GEORGE THOMSON showed a girl, aged twelve years, who had been seen in August, 1923, by Dr. E. O. Marks. At that time she had complained of headache and vomiting. The left eye had been normal and the right disc a little "fuzzy," but not the seat of a definite pathological lesion. The sight in both eyes had been good. In May, 1924, the patient had been seen by Dr. Thomson, at the Brisbane General Hospital. Optic atrophy of the left eye had been present and the eye had been blind. Optic neuritis had been present in the right eye and its vision had been  $\frac{1}{2}$  (partial). Lumbar puncture had been carried out, the fluid had been clear and the pressure had not been increased. The blood serum had not reacted to the Wassermann test and no abnormality had been found on X-ray examination. On examination of the nose a deviated and obstructive septum had been found. Adenoids had been present in the naso-pharynx and the tonsils had been slightly enlarged. The urine had been normal. Operation on the tonsils and adenoids had been followed by subsidence of the right papilledema with improvement of vision up to  $\frac{1}{6}$ . No change had occurred in the left eye.

In discussing the condition of this patient, both Dr. LOCKHART GIBSON and DR. WALLIS HOARE suggested the use of anti-syphilitic treatment.

#### Paresis of the Third Cranial Nerve.

Dr. Thomson's second patient was a young man, aged twenty-four years, who was recovering from influenza. Early in the course of the illness the left upper eyelid had begun to droop and paralysis of the external muscles of the eye had occurred. Two weeks later when seen by Dr. Thomson for the first time movement according to the patient had been returning to the eye and the palpebral aperture was becoming appreciably wider. Good lateral and moderately good downward movement had been present, but movements in an inward and upward direction had been very limited. There had also been paralysis of accommodation of the eye together with a moderate degree of ptosis. No proptosis had been present. No pain had been present on attempted movement of the eye and no fundus lesion had been discovered. The vision had been  $\frac{1}{6}$ . The condition had been diagnosed as a toxic affection of the third cranial nerve following influenza.

DR. LOCKHART GIBSON suggested that the paresis of the third cranial nerve might be post-diphtheritic.

#### Blindness Following "Couching."

DR. LOCKHART GIBSON showed a mounted specimen to demonstrate what occurs in an aseptic eye when accidental "couching" results in blindness.

The first result of the blow in a woman of fifty-seven years, had been pain and some increased tension. The lens had been seen to be tremulous and behind the lower iris. The eye had settled down, tension had become normal and pain had disappeared. A cataract lens had then been able to give a vision of  $\frac{1}{2}$ . This vision had persisted for four months. When she had presented herself again after twelve months, vision had declined to fingers at twelve inches. There had been glaucomatous tension and great circumorbital pain. The vitreous had remained clear and a very deeply and sharply cupped disc could be seen.

The specimen showed the cup very clearly and the displaced lens. The lens bobbing about in the anterior vitreous had caused glaucomatous tension and a fluid vitreous.

The case which Drs. Thomson and Marks had shown that night suggested a similar explanation except that the media were not clear.

He (Dr. Gibson) had recorded a case where a lens displaced by trauma behind the lower iris had done no harm for eleven years. It had then come forward into the anterior chamber. It was quite opaque. He had removed it in its capsule from the anterior chamber and obtained  $\frac{1}{12}$  of vision with a cataract lens. This vision still persisted.

He had seen a patient quite recently with a similar displacement. The good eye was becoming cataractous and vision was reduced to  $\frac{1}{30}$  in it. He found that no harm

had been done during six years by the displaced lens and was able by correction to give the patient  $\frac{1}{2}$  of vision with which he could carry on, while the other eye could then get blind at its leisure.

#### NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

GORMAN, ADRIAN PATRICK, M.B., B.S., (Univ. Melbourne), Oaklands.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

BUTLER, WALTER MARIO, M.B., B.S., 1924 (Univ. Melbourne), 28, Candy Street, Northcote.  
CORRELL, ALICE MARY, M.B., B.S., 1924 (Univ. Melbourne), Venice Street, Mentone.  
DENNEY, BESSIE, M.B., B.S., 1924 (Univ. Melbourne), 9, Douglas Street, East Malvern.  
HERIOT, STUART, M.B., B.S., 1924 (Univ. Melbourne), 35, Elphinstreet, Newport.  
SMITH, WINIFRED IRIS EVELYN, M.B., B.S., 1924 (Univ. Melbourne), 17, Elmie Street, Auburn.  
SUMMONS, HEDLEY FRANK, M.B., B.S., 1922 (Univ. Melbourne), Geelong Hospital, Geelong.

#### Medical Societies.

##### THE MELBOURNE PÆDIATRIC SOCIETY.

A MEETING OF THE MELBOURNE PÆDIATRIC SOCIETY was held at the Children's Hospital, Melbourne, on October 8, 1924, Dr. W. DISMORE UPJOHN, O.B.E., the President, in the chair.

##### Abscess of the Lung.

MR. W. KENT HUGHES showed a female patient who had suffered from an abscess of the lung. This case will be reported in full in a subsequent issue.

##### Papilloma of the Larynx.

MR. KENT HUGHES also showed a girl, aged ten years, in whom a number of papillomata of the larynx had been treated by thyrotomy and the actual cautery.

DR. UPJOHN asked whether the combination of cutting and the cautery was satisfactory and whether there was any risk of insemination of papillomata during the cutting. He suggested that the use of either the cautery or diathermy alone might be more satisfactory.

MR. KENT HUGHES was not in favour of the use of diathermy in these conditions as the healing process was too prolonged. He considered that cutting followed by the use of the electric cautery gave the most satisfactory results. Laryngeal papillomata were not quite similar to papillomata of the bladder in that the same difficulty in regard to scattered discrete papillomata was not encountered.

##### Meningococcal Meningitis.

DR. JEAN MACNAMARA on behalf of Dr. R. L. FORSYTH showed a baby, aged nine months, who had recovered from meningococcal meningitis after intensive serum therapy and who presented no apparent sequelæ. Dr. Macnamara stated that these conditions in babies were usually hopeless. According to the hospital records no recovery of any patient suffering from this condition had occurred since the widespread epidemic during the war period. As a result of examination of the records of patients treated during the epidemic the following points had been noted: A baby had occasionally recovered without the use of serum; early active treatment was always valuable; there was no danger with large doses of serum, if given slowly. With sporadic cases the prognosis was much worse and

up to the time of the meeting none of the patients treated since the epidemic had recovered with the exception of the child demonstrated that night. Dr. Macnamara suggested that the use of monovalent serum or the serum of convalescent patients might yield better results.

DR. H. GRAHAM BOYD advocated the use of anti-meningococcal serum in every case of purulent meningitis. If the meningitis proved to be pneumococcal, the outlook was always hopeless, but if it were meningococcal, valuable time was saved by giving serum at the earliest opportunity. He referred to the history of a child who had recovered after the use of serum, but who was completely blind and quite helpless, these crippling sequelæ rendering the after treatment extremely difficult.

##### Pseudo-Hermaphroditism.

DR. H. C. COLVILLE showed a young child who had always been regarded as a girl until the performance of an operation for inguinal hernia. The hernial sac had been found to contain a testis. Dr. Colville said that the case was of interest because hermaphroditism was usually not discovered until considerably later in life. He showed the patient with the object of ascertaining the opinion of members as to what should be done with the child.

MR. H. DOUGLAS STEPHENS said that he had operated on a child similarly affected with the object of converting it into a male. Four years later, however, there had been no development whatever in the rudimentary clitoris. He considered that the child should be regarded as asexual and should be brought up as a girl. Orchidectomy should not be performed.

DR. UPJOHN considered that the double orchidectomy should be performed and the child should be brought up as a girl.

MR. KENT HUGHES advocated similar treatment.

DR. ETHEL OSBORNE suggested that ovarian tissue should be grafted after orchidectomy had been performed.

##### Gangrene of the Feet Following Purpura.

DR. J. W. GRIEVE showed a female patient, aged two and a half years, who was suffering from gangrene of the feet. This condition had occurred as a complication of severe purpura with infective obliterative endarteritis. The only similar case which Dr. Grieve could find recorded in the literature, was one reported in *The American Journal of Diseases of Children* in which both hands had been involved in a similar manner. The patient also had a large deep slough in the right buttock and an extensive purpuric area on the dorsum of the left hand and a number of smaller areas on the trunk.

DR. R. R. WETTENHALL stated that he had never before seen a case of purpura associated with such extensive gangrene as in the patient shown. In adults he had seen severe gangrene of the limbs and mouth following arsenical injections. Such lesions generally commenced as large bullæ and it was always necessary to consider whether there had been any irritative cause underlying the lesion, such as carbolic acid dressings, arsenic or self-inflicted skin affections.

DR. C. W. B. LITTLEJOHN asked whether the blood platelets had been counted. He referred to a series of fifty cases of *purpura hæmorrhagica* which had been reported by Dr. Charles Mayo. The patients had been treated by splenectomy. In these the blood platelet count had averaged twenty thousand before operation and the number had risen to one hundred and fifty thousand after splenectomy.

##### Surgical and Orthopædic Clinics Abroad.

DR. LITTLEJOHN then gave a most entertaining and instructive account of the various surgical and orthopædic clinics which he had visited during his recent trip to England, Europe and America. He said that the present knowledge of cripples and the methods of dealing with them were, in his opinion, closely analogous to that obtaining in regard to abdominal surgery twenty-five years previously. His remarks were directed chiefly towards the treatment of tuberculous involvement of bones or joints. He classified this treatment under two heads: Conservative treatment and treatment by early operation.



In England and Europe the treatment was practically always carried out on conservative lines, the chief principle of which were as follow:

(i.) Immobilization, either partial or complete by means of canvas jackets, plaster, plaster beds or extension frames. In the treatment of spinal disease this was maintained for periods up to two years.

(ii.) Sunlight. Helio-therapy was carried out in a most carefully graduated manner at Leysin. With regard to artificial sunlight, carbon arc lights gave the most satisfactory results, while iron, tungsten and cadmium filament lamps gave the largest proportion of the violet and ultra-violet end of the spectrum. On the hypothesis that the bactericidal power of the blood was increased by exposure to these rays, some authorities believed in following up the exposure by active congestion in the affected parts.

(iii.) Feeding. Forced feeding had been completely abandoned in favour of ordinary full diet with abundance of fat.

(iv.) Drugs were not very popular, except perhaps cod liver oil given as a *placebo* and iron in patients with severe anæmia.

(v.) Sea-bathing was considered of great advantage, particularly in France. The patients were dipped in the water and taken out immediately and then "scrubbed" thoroughly with towels.

In America early operation was the recognized method of treatment, Hibbs being the leading exponent. The object aimed at was to fix all joints—knee, hip and spine—as soon as possible by early operation. It was questionable whether this was not going too far in the other direction.

For spinal caries the operation of "*morcellement*" was used and this was described in detail by Dr. Littlejohn. The after treatment consisted simply of rest in bed perhaps with a light steel brace. The patients were up out of bed in six weeks and walked in three months.

Dr. Littlejohn also described various methods of treatment of infantile paralysis, spastic paraplegia, birth palsies, congenital dislocation of the hip and scoliosis.

THE CHAIRMAN thanked Dr. Littlejohn for his most interesting lecture on his observations abroad and the meeting then closed.

#### FRIENDLY SOCIETY LODGE PRACTICE.

Our attention has been directed to an error which appeared in THE MEDICAL JOURNAL OF AUSTRALIA, October 25, 1924, page 449, in regard to the rates paid to medical officers of friendly society lodges at Mackay, Queensland. The amount is twenty-six shillings a year and not twenty shillings as set out.

#### THE AMERICAN COLLEGE OF SURGEONS.

At the clinical congress of the American College of Surgeons held in New York on October 20, 1924, and following days, the undermentioned Australian practitioners were elected Fellows:

Dr. R. C. Brown (Melbourne), Dr. C. P. B. Clubbe (Sydney), Dr. R. Gordon Craig (Sydney), Dr. H. B. Devine (Melbourne), Dr. H. R. Dew (Melbourne), Dr. Robert Fowler (Melbourne), Dr. A. Norman McArthur (Melbourne), Dr. A. M. Morgan (Adelaide), Dr. R. H. Morrison (Melbourne), Dr. D. M. Morton (Melbourne), Dr. H. S. Newland, C.B.E., D.S.O. (Adelaide), Dr. Herbert Alan Newton (Melbourne), Dr. W. N. Robertson, C.B.E. (Brisbane), Dr. H. Douglas Stephens (Melbourne), Sir George A. Syme, K.B.E. (Melbourne), Dr. T. G. Wilson (Adelaide), Dr. Hamilton Russell (Melbourne) and Dr. Ralph Worrall (Sydney) were elected Honorary Fellows of the College.

Dr. N. D. Royle and Professor J. I. Hunter delivered the Doctor John B. Murphy Oration.

### Obituary.

#### ALFRED COWEN.

WE regret to announce the death of Dr. Alfred Cowen which occurred at Malvern, Victoria, on October 25, 1924.

#### WILLIAM LONGWORTH WATKINS.

IT is with regret that we announce the death of Dr. William Longworth Watkins which occurred at Malvern, Victoria, on November 2, 1924.

#### ROWLAND EDWARD HARROLD.

THE announcement of the death of Dr. Rowland Edward Harrold which occurred at Adelaide on October 6, 1924, is made with regret.

#### JOHN EDWARD ANDREW.

WE regret to announce the death of Dr. John Edward Andrew which occurred at Middle Brighton, Victoria, on October 6, 1924.

### Naval and Military.

#### APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Nos. 72 and 74 of October 4 and 10, 1924.

#### PERMANENT NAVAL FORCES OF THE COMMONWEALTH (SEA-GOING FORCES).

*Confirmation in Rank.*—SURGEON LIEUTENANTS (on probation) ARTHUR ROBERT HILL, M.C., M.B., Ch.B., and JAMES MARTIN FLATTERY, M.B., Ch.M., are confirmed in the rank of Surgeon Lieutenant with seniority in rank of 21st August, 1923, and 29th August, 1923, respectively.

#### AUSTRALIAN MILITARY FORCES.

##### First Military District.

##### Reserve of Officers.

*To be Major*—CAPTAIN A. J. MACDONALD, 1st September, 1924; CAPTAIN A. J. DE S. HOWARD is transferred from the Reserve of Officers, 2nd Military District, 1st October, 1924; CAPTAIN A. E. BURKE-GAFFNEY is transferred from the Reserve of Officers, 3rd Military District, 1st October, 1924.

##### Second Military District.

##### Reserve of Officers.

CAPTAIN A. J. DE S. HOWARD is transferred to the Reserve of Officers, 1st Military District, 1st October, 1924.

##### Third Military District.

##### Australian Army Medical Corps.

CAPTAIN G. V. DAVIES, D.S.O., is appointed from the Reserve of Officers, 1st September, 1924.

##### Unattached List.

CAPTAIN A. W. NANKERVIS is placed on the Retired List, with permission to retain his rank and wear the prescribed uniform, 23rd July, 1924.

*Reserve of Officers.*

CAPTAIN A. E. BURKE-GAFFNEY is transferred to the Reserve of Officers, 1st Military District, 1st October, 1924; MAJOR H. F. HAYES is placed on the Retired List with the honorary rank of Lieutenant-Colonel, and with permission to wear the prescribed uniform, 14th September, 1924.

**Fourth Military District.***Australian Army Medical Corps.*

To be Majors—CAPTAINS R. L. KENIHAN, M.C., L. O. BETTS, O.B.E., and H. P. BROWNELL, D.S.O., 1st July, 1924.

**Books Received.**

**DISEASES OF THE EYE: A HANDBOOK OF OPHTHALMIC PRACTICE FOR STUDENTS AND PRACTITIONERS**, by George E. de Schweinitz, M.D., LL.D. (Univ. of Penna.), Sc.D. (Univ. of Mich.); Tenth Edition, Re-set; 1924. Philadelphia and London: W. B. Saunders Company, Melbourne: James Little; Royal 8vo., pp. 865, with 434 illustrations and seven coloured plates. Price: 50s. net.

**ESSAYS AND ADDRESSES ON DIGESTIVE AND NERVOUS DISEASES AND ON ADDISON'S ANÆMIA AND ASTHMA**, by Arthur F. Hurst, M.A., M.D. (Oxon.), F.R.C.P.; 1924. London: William Heinemann (Medical Books) Limited; Demy 8vo., pp. vii. + 306. Price: 21s. net.

**ENCYCLOPÆDIA MEDICA**, under the General Editorship of the late J. W. Ballantyne, M.D., C.M., F.R.C.P.E. (Volumes I. to VIII.) and Alexander Goodall, M.D., F.R.C.P.E. (Volumes IX. to XI.); Second Edition. Volume XII: "Skin" to "Tuberculosis"; 1924. Edinburgh: W. Green and Son, Limited; Sydney: Butterworth and Company (Australia), Limited. Royal 8vo., pp. 769.

**FERTILITY AND STERILITY IN HUMAN MARRIAGES**, by Edward Reynolds, M.D., and Donald Macomber, M.D., with a Section on "The Determining Causes of Male Sterility," by Edward L. Young, Jr., M.D.; 1924. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little; Royal 8vo., pp. 285, illustrated. Price: 25s.

**Medical Appointments.**

DR. ERIC WILFRED FRECKER (B.M.A.) has been appointed Government Medical Officer, at Kiama, New South Wales.

DR. MICHAEL FITZSIMMONS (B.M.A.) has been appointed Government Medical Officer, at Condobolin, New South Wales.

DR. RUPERT FARQUHAR SHEPHERDSON (B.M.A.) has been appointed Government Medical Officer, at Cloncurry, Queensland.

DR. ALBERT PETER DAVIS (B.M.A.), of Yarloop, has been appointed Justice of the Peace for the Wellington Magisterial District, Western Australia.

DR. PATRICK MICHAEL O'MEARA (B.M.A.) has been appointed Acting Resident Magistrate and Acting Magistrate of the Local Court, Onslow, Western Australia; also Acting Chairman of the Ashburton Court of Session.

DR. E. J. T. THOMPSON (B.M.A.) has been appointed Senior Assistant Medical Officer, Lunacy Department, Western Australia.

DR. HENRY WATSON (B.M.A.) has been appointed Public Vaccinator, at Talbot, Victoria.

DR. G. H. VERNON (B.M.A.) has been appointed Quarantine Officer, Thursday Island.

**Medical Appointments Vacant, etc..**

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xviii.

ROYAL HOSPITAL FOR WOMEN: Resident Medical Officer.

**Medical Appointments: Important Notice.**

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

**Diary for the Month.**

- Nov. 25.—New South Wales Branch, B.M.A.: Medical Politics Committee, Organization and Science Committee.  
Nov. 26.—Victorian Branch, B.M.A.: Council.  
Nov. 27.—New South Wales Branch, B.M.A.: Branch.  
Nov. 27.—South Australian Branch, B.M.A.: Branch.  
Nov. 28.—Queensland Branch, B.M.A.: Council.  
Dec. 2.—New South Branch, B.M.A.: Ethics Committee.  
Dec. 3.—Victorian Branch, B.M.A.: Annual General Meeting.  
Dec. 5.—Queensland Branch, B.M.A.: Branch.  
Dec. 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
Dec. 10.—Tasmanian Branch, B.M.A.: Branch.  
Dec. 10.—South Sydney Medical Association, New South Wales.  
Dec. 10.—Central Northern Medical Association, New South Wales.  
Dec. 10.—Melbourne Pædiatric Society.  
Dec. 11.—New South Wales Branch, B.M.A.: Branch.  
Dec. 11.—Victorian Branch, B.M.A.: Council.  
Dec. 11.—South Australian Branch, B.M.A.: Council.  
Dec. 11.—Brisbane Hospital for Sick Children: Clinical Meeting.  
Dec. 12.—Queensland Branch, B.M.A.: Council.  
Dec. 12.—Committee, Organization and Science Committee.  
Dec. 16.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
Dec. 24.—Victorian Branch, B.M.A.: Council.  
Dec. 26.—Queensland Branch, B.M.A.: Council.

**Editorial Notices.**

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

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